to any products or services that are defective or fail to comply with the specifications and requirements pursuant to the terms of this Agreement.

At the completion of Phase 8, the County will be provided thirty (30) calendar days to operate and test the System. During the thirty (30) day period, Contractor shall furnish complete off-site telephone support in the form of consultation and/or remote diagnostic software support within four (4) hours of the County's support request. If the error, defect or nonconformity cannot be corrected by off-site telephone support within five (5) business days of when the error was first reported during normal business hours (Monday through Friday, 8:00 a.m. to 5:00 p.m. EST), the Contractor shall provide on-site support service at the beginning of the next business week, or as otherwise agreed upon, including implementation of temporary procedures to sustain the computerized mass appraisal system. The Contractor shall provide corrective measures for all reported errors within five (5) business days of the commencement of on-site service. If the System fails to meet the specifications and requirements provided for in this Agreement during the thirty (30) day period, County may, at County's option, request modification of the software by the Contractor, at no additional contract charge.. At the conclusion of the thirty (30) day period, if County has not notified Contractor in writing of any such failure or defect in the System, the County will be deemed to have given final acceptance for the System.

ARTICLE 6. SOFTWARE LICENSES

a. ORACLE® SOFTWARE

The Oracle® license is covered under Jefferson County Article of Agreement for iasWorld License Agreement dated December 14, 2006.

b. COLE LAYER TRUMBLE (*ias*World) SOFTWARE

1. The *ias*World Property Tax Engine modules as identified and described in Exhibit 4 (Software License/Sublicense Agreement), Part B, attached hereto, are covered under Jefferson County Article of Agreement for iasWorld License Agreement dated December 14, 2006.

c. OTHER THIRD-PARTY SOFTWARE

1. The Contractor shall, subject to acquisition of any additional Phase of service (1 to 8) or part of a Phase, pass to the County, subject to full payment of the County's obligations provided herein, a license to use Software identified and described in Exhibit 4 (Software License/Sublicense Agreement), attached hereto. All third-party software shall conform to published specifications and representations of the supplier.

2. Subject to the terms and conditions hereinafter set forth, the Contractor grants to the County a perpetual right-to-use, non-exclusive, nontransferable pass-through license to use the Akanda Innovations Inc Licensed Software, hereinafter referred to as the *ias*World Productivity Tools modules as identified and described in Exhibit 4 (Software License/Sublicense Agreement), Part C, attached hereto, solely in the conduct of the business of the County, related documentation, and any improvements, additions or modifications of the version or versions of the software which the Contractor has licensed to the County, together with the right to make such copies of the software as may be required for the County's own internal business purposes.

ARTICLE 7. ASSURANCES, REPRESENTATIONS AND WARRANTIES OF CONTRACTOR

a. The Contractor warrants to the County that the System will operate according to the performance standards set forth in Exhibit 3 (iasWorld Baseline Descriptions) and such additional requirements as developed by the County and the Contractor in the Requirements and Specification Validation during Phase 2.

b. The Contractor warrants that the System shall operate in accordance with the requirements of this Agreement from the date of acceptance through the maintenance periods provided in Exhibit 6 (Ongoing Maintenance and Support), and any extension or renewal thereof.

c. The Contractor warrants and represents to the County that the Contractor has the right to grant to the County the right to use all software without restriction or limitation except as provided herein and in accordance with the provisions set forth in Article 6. The Contractor warrants and represents to the County that the Contractor is an authorized distributor for the sublicensed software, attached hereto as Exhibit 4 (Software License/Sublicense Agreement). The County will have the right to use the sublicensed software.

d. The Contractor warrants the software will perform as specified herein upon acceptance of Phase 8, and shall perform as represented by the Contractor with respect to updates, enhancements or additional software which may be acquired by the County so long as the County continues with a Maintenance Agreement with the Contractor or the Contractor's successors or assigns.

During the maintenance period, the Contractor will design, code, test, document and deliver any amendments or alterations (the "Amendments") to the Contractor's software that is necessary to correct or avoid any defect in the Contractor's software which is present at the time of delivery, or is discovered during County usage, and affects performance of the Contractor's software in accordance with the functions set forth in Exhibit 3 (iasWorld Baseline Description). The Contractor shall only be responsible to correct defects that are documented or submitted in writing during the maintenance agreement period. Oral notification or other unwritten complaints will not constitute notice under this Agreement.

e. The Contractor agrees that in case of dissolution of Contractor's third party supplier, the Contractor will replace third party supply with equivalent supply, to be approved by County, within 30 days of dissolution.

The warranties specified in Article 7 above do not cover damage, defect, malfunctions or failure caused by: (i) failure by the County to follow the Contractor's and the manufacturer's installation, operation, or maintenance instructions or its failure to fulfill its obligations under this Agreement, (ii) the County's modification or relocation of the System, (iii) the County's abuse, misuse or negligent acts, (iv) power failure or surges, lightning, fire, flood, accident, actions of third parties and other events, including force majeure, outside Contractor's reasonable control, and (v) failure of County to provide an operating environment for the System, including electrical and telecommunications connections as defined during the Phase 2: Requirements Analysis.

TTHE FOREGOING WARRANTIES ARE EXCLUSIVE AND ARE IN LIEU OF ALL OTHER WARRANTIES OF ANY TYPE WHETHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

ARTICLE 8. TERMINATION

A. Termination for Cause. During the implementation of the system, which is described in Phases 1- 8 of Exhibit 1 (Scope of Work) or until the County uses the software in production, whichever occurs first, the County shall have the right to terminate the Agreement for cause, upon sixty (60) days written notice to the Contractor. Said written notice will include the reasons for the termination, and, upon receipt, the Contractor shall have sixty (60) days to correct. At the end of the sixty (60) day period, if the Contractor has corrected the cause for termination, the termination request shall be rescinded. If the Contractor has not corrected the cause of the termination as defined in the County's notice of termination within sixty (60) days after the receipt of such notice, this Agreement shall automatically terminate and the Contractor shall pay the County as liquidated damages, a one-time payment of Three Hundred Sixty Five Thousand Seven Hundred Fifty Dollars ($365,750.00), which shall be the County's sole and exclusive remedy in the event of a termination for cause. The Contractor may offset against this payment all monies owed by the County to the Contractor (other than license fee payments) for all services rendered and materials furnished as of the date of termination.

The Agreement may be terminated for cause by the County for the following reasons:

- Reasonable evidence that the Company is not using commercially reasonable efforts to complete the work within the then agreed upon specified time.
- Failure of the iasWorld product to meet the published specifications as included in Exhibit 3 herein.

B. Termination for Convenience. This Agreement may be terminated by either party by giving thirty (30) days written notice to the other, before the effective date of termination, providing the terminating party has first exercised the Dispute Resolution provision of this Agreement as described in Article 15 herein. In the event of termination or suspension, the Contractor shall be entitled to receive payment in full at the amounts as described in Exhibit 2 herein, or if not specifically set forth in this Agreement, at the Contractor's standard or published rates for all services performed (including expenses allowed under this Agreement) and for all software, licenses, materials and/or bonding delivered by the Contractor up to the effective date of the termination or suspension, as the case may be, plus such other charges as may be agreed upon by the parties.

C. Effect of termination. Upon the termination of this Agreement, under Section 8(A) or 8(B), all licenses previously granted shall be revoked, and each party shall return to the other all software, documents, information, or other materials owned by the other party.

ARTICLE 9. PATENT AND COPYRIGHT INDEMNIFICATION

a. The Contractor shall defend or settle any PATENT AND COPYRIGHT INFRINGEMENT suit or proceeding brought against County by a third party arising out of, or relating to, County's own internal use of the Software provided that Contractor is given written notice within ten (10) days of receipt of notice of such claim and is given information, reasonable assistance and sole authority to defend or settle the claim. Provided, however, in any suit or proceeding in which it is alleged that the infringement is based upon actions of the County excluded under (c.) below and the matter is finally settled (with the consent of Contractor) or held by a court of competent jurisdiction, including appellate proceedings, that such infringement did not arise as a result of any action of County covered under (c.) below, then the Contractor shall pay all costs incurred by County in defending such claim, including reasonable attorneys' fees.

b. The Contractor, at its option, may obtain for the County the right to continue using or to replace or modify the equipment or Licensed Software involved so it becomes non-infringing; or if such remedies are not reasonably available, grant the County a refund, based on the County's net book value, for the equipment or Licensed Software provided pursuant to this Agreement and accept the return of the infringing product.

c. The Contractor shall have no obligation under this Section if the alleged infringement or violation is based upon the use of the Software in combination with other hardware or software (other than as installed by the Contractor) including tailoring, customizing, modifications or enhancements provided by the Contractor to conform to the Requirements and Specification Validation or from modifications, enhancements or changes not provided by the Contractor.

d. THIS ARTICLE STATES THE ENTIRE LIABILITY OF CONTRACTOR FOR PATENT OR COPYRIGHT PROTECTION INFRINGEMENT BY THE LICENSED SOFTWARE OR THE EQUIPMENT OR ANY PORTIONS THEREOF.

ARTICLE 10 LIMITATION OF ACTIONS AND LIABILITY

a. Neither party shall be liable to the other for any loss, damage, failure, delay or breach in rendering any services or performing any obligations hereunder to the extent that such failure, delay or breach results from any cause or event beyond the control of the party being released hereby ("Force Majeure"), including, but not limited, to acts of God, acts or omissions of civil or military authorities.

If either party is prevented or delayed in the performance of its obligations hereunder by Force Majeure, that party shall immediately notify the other party in writing of the reason for the delay or failure to perform, describing in as much detail as possible the event of Force Majeure causing the delay or failure and discussing the likely duration of the Force Majeure and any known prospects for overcoming or ameliorating it. Both parties agree to take any commercially reasonable measures to overcome or ameliorate the Force Majeure and its adverse effects on this Agreement, and to resume performance as completely as is reasonably possible once the Force Majeure is overcome or ameliorated.

b. In no event shall Contractor or its officers, agents and employees be liable to County for any loss of profits, consequential, incidental, indirect or special damages under any circumstances even if Contractor has been advised of the possibility of same except for the amount of direct damages to real or personal property and personal injury caused by the negligent acts, errors or omissions of Contractor or its officers, agents and employees.

c. In any event, the Contractor's liability for damages (except for damage to real or personal property or personal injury as provided above) under any theory of liability or form of action including negligence, to the extent permitted by law, shall not exceed the total amount paid by the County to the Contractor under this Agreement.

d. This Article 10 shall survive the failure of any exclusive remedy.

ARTICLE 11. NOTICE

All notices required or permitted to be given by one party to the other under this Agreement shall be sufficient if sent by Certified Mail, Return Receipt Requested, to the parties at the respective addresses set forth above or to such other address as the party to receive the notice has designated by written notice to the other party.

Notices to the County shall be to the attention of:

Ms. Beth Mahn, Collector
Jefferson County Administration Center
729 Maple Street
Hillsboro, MO 63050

Notices to the Contractor shall be to the attention of:

Mr. Andrew Teed
Senior Vice President
Cole Layer Trumble Company
3199 Klepinger Road
Dayton, Ohio 45406

ARTICLE 12. GOVERNING LAW

This Agreement shall be interpreted under the substantive law of the State of Missouri, as it existed and was interpreted on the date of this agreement. In the event that the laws of the State of Missouri change, so as to create additional work for the Contractor not provided for in this Agreement, the County shall allow the Contractor a reasonable extension of the completion date and additional compensation to be negotiated.

ARTICLE 13. CONSENT TO JURISDICTION, VENUE AND SERVICE

The Contractor consents and agrees that all legal proceedings related to the subject matter of this Agreement shall be maintained in courts sitting within the State of Missouri. Contractor further consents and agrees venue for State court proceedings shall be in the County of Jefferson, Missouri, and no court actions commenced in Missouri shall be transferred or removed to any other State or Federal court.

ARTICLE 14. COVENANTS BY THE COUNTY

The County hereby covenants and agrees:

a. That _____ is hereby appointed as the County's Project Manager with respect to the services to be performed by the Contractor pursuant to this Agreement. The County's Project Manager shall have the authority to transmit instructions, receive information, interpret and define the policy of the County and make decisions pertinent to services covered by this Agreement. The County's Project Manager shall have the right, from time to time, to designate another employee of the County of Jefferson to serve in the absence of the Contract Project Manager. The County reserves the right to designate a different Contract Project Manager, provided that the Contractor is given written notice thereof.

b. To make such facilities and properties as are reasonably necessary for the performance of work available and accessible for use by the Contractor during normal working hours as may reasonably be required by the Contractor for the performance of this Agreement.

c. To perform at no cost to the Contractor such tests of equipment, machinery and facilities of the County in a timely manner as may be reasonably required in connection with the work under this Agreement. The tests to be performed must be within the ability and capability of the County's equipment and personnel.

d. To give prompt notice to the Contractor whenever the County observes or otherwise becomes aware of any defect in the performance of work under this Agreement.

e. To give careful and reasonable consideration to the findings and recommendations of the Contractor and to respond in a timely manner so as not to unduly delay the Contractor's work called for by this Agreement.

ARTICLE 15. DISPUTE RESOLUTION

Disputes shall be resolved as follows: through good faith negotiations by the designees identified in this Agreement after written notice and if not resolved by such designees after seven (7) days, Contractor shall at or after the end of the seven (7) day period submit its claim with the basis for the dispute in writing to the Jefferson County Counsel for a determination and handling. Any dispute resolution agreed to by the County's Counselor, constituting a material change in this Agreement or providing for payment different than of the amount established under this Agreement, will not be final until such changes are incorporated into a written Amendment to this Agreement by means of the County's normal change order process. If such dispute involves a payment due, the County shall, as promptly as reasonably possible after resolution of such dispute, forward payment to Contractor of any amount determined to be due and owing.

Any dispute not resolved in accordance with this Article 15 may be resolved by recourse to litigation in accordance with the laws of Missouri with venue in the County of Jefferson.

ARTICLE 16. INDEMNIFICATION

Except as provided below, the Contractor agrees to defend and save harmless the County, its officers, agents and employees against all claims, demands, payments, suits, actions, recovery, and judgments of every kind and description arising out of the performance of this Agreement, for personal injury or property damage brought or recovered against it by reason of any negligent action or omission of the Contractor, its agents, or employees and with respect to the degree to which the County is free from negligence on the part of itself, its employees and agents.

To the extent permitted by law, neither party shall be liable to the other for consequential, indirect or incidental damages, including, but not limited to, loss of tax revenue or claims related to valuation of property, whether based in contract, negligence, strict liability or otherwise.

ARTICLE 17. INSURANCE

The Contractor will not commence work under this Agreement until the Contractor has obtained all insurance under this section. The Contractor shall obtain, at its expense, the following minimum amounts of insurance (inclusive of any amounts provided by an umbrella or excess policy):

The Contractor shall carry Public Liability Insurance in the amount of $1,000,000 including protection for bodily injury and property damage with a combined single limit of $1,000,000 and $500,000 for each occurrence naming the County as the additional insured only to the extent of obligations assumed by the Contractor under this Agreement.

The Contractor shall also maintain Automobile Liability Insurance providing limits of $1,000,000 per occurrence, and the Contractor shall provide Workers' Compensation Insurance. The Workers' Compensation Insurance shall provide coverage under the Compensation Act of Missouri and shall provide employer's liability insurance in the amount of $100,000.

Certificates of Insurance shall be supplied to the County by the Contractor detailing the above coverages. These certificates will be issued by a carrier authorized to do business within the State of Missouri.

ARTICLE 18. LEGAL RESTRAINTS AND LIMITATIONS

The Contractor acknowledges that the County, as a unit of local government and a political subdivision of the State of Missouri, is subject to restraints, limitations, regulations, and controls imposed or administered pursuant to numerous applicable laws, ordinances, rules and regulations of federal, state, regional and certain local governmental agencies or authorities. The Contractor agrees that all professional services rendered or performed by the Contractor pursuant to the provisions of this Agreement shall be in compliance therewith.

ARTICLE 19. SOLICITATION OF AGREEMENT

The Contractor warrants that it has not employed or retained any company or person other than a bona fide employee working solely for the Contractor to solicit or secure this Agreement, and that it has not paid or agreed to pay any company or person other than bona fide employee working solely for the Contractor, any fee, commission, percentage, brokerage fee, gift, contingent fee or any other consideration contingent upon

or resulting from the award or making of this Agreement. For breach or violation of this warranty, the County shall have the right to annul this Agreement without liability or at its discretion to deduct from the Agreement price or consideration or otherwise recover the full amount of such fee, commission, percentage, brokerage fee, gift or contingent fee.

ARTICLE 20. INDEPENDENT CONTRACTOR

The relationship of the Contractor to the County shall be that of an independent contractor and no principal-agent or employer-employee relationship is created by this Agreement.

ARTICLE 21. CONFLICT OF INTEREST

The Contractor covenants that it has no public or private interest, and will not acquire directly or indirectly any interest which would conflict in any manner with the performance of its services. The Contractor warrants that no part of the total contract amount provided herein shall be paid directly or indirectly to any officer or employee of the County as wages, compensation, or gifts in exchange for acting as officer, agent, employee, subcontractor or consultant to the Contractor in connection with any work contemplated or performed relative to this Agreement.

ARTICLE 22. SUBCONTRACTORS

It is expected that the Contractor and their sub-contractor Akanda Innovation, Inc. shall have standard in-house capability to provide all the services required by this Agreement; however, should the Contractor find it necessary to utilize the services of additional subcontractors, the Contractor shall first obtain the written approval of the County. The Contractor shall also require each subcontractor to adhere to applicable provisions of this Agreement. The utilization of any subcontractor by the Contractor shall not relieve the Contractor from any liability or responsibility to the County pursuant to the provisions of this Agreement or obligate the County to the payment of any compensation to the subcontractor or additional compensation to the Contractor.

ARTICLE 23. ASSIGNMENT

No assignment of this Agreement or any right or interest herein by either party shall be effective unless the other party shall first give its written consent to such assignment. The performance of the Agreement by the Contractor is the essence of this Agreement. Notwithstanding, the Contractor may, with the County's consent, assign this Agreement to an affiliate or subsidiary of the Contractor or its parent corporation, or assign its rights to receive payments hereunder.

ARTICLE 24. NON-DISCRIMINATION PROCEDURES

During the performance of this Agreement, the Contractor agrees as follows:

a. The Contractor will not discriminate against any employee or applicant for employment because of race, creed, sex, color, national origin or age, and will take affirmative action to insure that all employees and applicants are afforded equal employment opportunities without discrimination because of race, creed, sex, color, national origin or age. Such action will be taken with reference to, but shall not be limited to, recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff or termination, rates of training or retraining (including apprenticeship and on-the-job training).

b. No person in the United States shall, on the grounds of race, creed, sex, color, national origin or age, be excluded from participation in, be denied the proceeds of, or be subject to discrimination in the performance of this Agreement.

ARTICLE 25. AUTHORITY TO EXECUTE

Each of the parties hereto covenants to the other party that it has lawful authority to enter into this Agreement, that the governing or managing body of each of these parties has approved this Agreement and that the governing or managing body of each of the parties has authorized the execution of this Agreement in the manner hereinafter set forth.

ARTICLE 26. SEVERABILITY

If any provision of this Agreement shall be declared invalid or unenforceable, such invalidity or unenforceability shall not affect the whole Agreement, but the whole Agreement shall be construed as if not containing the provision, and the rights and obligations of the parties shall be construed and enforced accordingly.

ARTICLE 27. NO WAIVER

The failure by any party to exercise any right provided for herein shall not be deemed a waiver of any right hereunder.

ARTICLE 28. LAW CHANGES

This Agreement and the system will be in compliance with the laws and regulations of the State of Missouri and Jefferson County as they exist as of the execution date of this Agreement.

The Contractor agrees to make changes to *ias*World resulting from future Missouri State or Jefferson County laws or regulations for a fee to be determined and negotiated based upon the following:

a. Changes required as a result of State of Missouri laws and/or regulations. Contractor agrees that any changes necessitated as a result of State law and/or regulation changes will be covered in accordance with Exhibit 6, Appendix A of this agreement, which states that as part of the maintenance of the software, eighty base hours per state, per year are included in the maintenance support to cover changes necessitated by state law and/or regulation changes. If a change is required that shall exceed the eighty hours provided, BEFORE COMMENCING ANY WORK, Contractor shall submit to County, in writing a description and fees related to the work required for compliance. Fees that exceed the eighty hours in the maintenance contract shall be prorated by tax parcel unit cost and the County shall be billed a prorated share of the fees which exceed the eighty hours of the State's portion assessed by Vendor. The prorated share for the County will be determined by the County's percentage of tax parcels as compared to the total tax parcels in the State from all Counties which utilize this license and need the same modification. Any agreed fees shall be documented through the County's change order procedure.

b. Any changes required as a result of Jefferson County specific requests, will be evaluated by Contractor and pricing negotiated with County. PRIOR TO COMMENCING ANY WORK, the scope of work and related fees shall be documented through the County's change order procedure.

ARTICLE 29. NON-SOLICITATION

During the Time for Performance and Completion (Article 2) and for a period of six months following the project completion date, the County will not solicit for employment or hire any Contractor employee without the express written consent of the Contractor.

ARTICLE 30. EXHIBITS

The documents listed below have been attached hereto and are incorporated herein as a part of this Agreement.

Exhibit Number

1 Scope of Work
2 Project Payment Schedule
3 *ias*World Baseline Description
4 Software License/Sublicense Agreement
5 Hardware Configuration
6 Ongoing Maintenance and Support
7 County Responsibilities

IN WITNESS WHEREOF, the parties hereto have set their hands to duplicates of this Agreement this

31st day of January, 2006.

JEFFERSON COUNTY, MISSOURI

BY: Mark A. Mertens

BY: Edward Z. Kemp

BY: Patricia J. Lamping

TYLER TECHNOLOGIES, INC.
CLT Division

Witness

BY: John R. Baker
John R. Baker
Sales Support Manager

I hereby certify under section 50.660 RSMo there is either: (1) a balance of funds, otherwise unencumbered, to the credit of the appropriation to which the obligation contained herein is chargeable, and a cash balance otherwise unencumbered, in the treasury, to the credit of the funds from which payment is to be made, each sufficient to meet the obligation contained herein; or (2) bonds or taxes have been authorized by vote of the people and there is a sufficient unencumbered amount of the bonds yet to be sold or of the taxes levied and yet to be collected to meet the obligation in case there is not a sufficient unencumbered cash balance in the treasury.

COUNTY AUDITOR

APPROVED AS TO FORM

COUNTY COUNSELOR

EXHIBIT 1 – SCOPE OF WORK

Project Vision

Tyler Technologies' (Tyler | CLT) vision is to establish its *i*asWorld System into the Jefferson County Collector's Office as the staple end-to-end solution for property tax and assessment functions.

This project covers integration, configuration, and testing of the *i*asWorld modules: Assessment Administration (AA), CAMA (CA), Inquiry & Appeal Tracking (I&AT), Personal Property (PP), Tax Billing & Collection, Delinquent Tax, Landisc™, *i*Maintain, *i*Enable, *i*Care, *i*Analyze, *i*Respond and *i*Doc. It also covers the aspects of implementation and set-up, conversion, possible modifications, training, and transition to production for these modules.

Tyler | CLT has a vision of not only implementing *i*asWorld, but establishing a long term relationship with Jefferson County.

Scope

The Contractor will perform a Gap/Fit Analysis of current business processes, technical environments and current interfaces, and will document any site specific setup and configurations needed to *i*asWorld. It is the Contractor's intent to install the base iasWorld software modules as initially delivered to Forsyth County, GA as the basis for this project. The Contractor will install the *i*asWorld software modules on County hardware, map the existing County data for conversion, and perform test and final conversion. The Contractor will also apply set-ups and modifications to installed modules, update system documentation and deliver documentation and training to the County. This will be accomplished in several phases. The following are some specific tasks and deliverables during each phase.

Phase 1: Project Start-up

Project Start-up

The Contractor will execute project start-up tasks including internal project planning, establishment of project control procedures, project staffing and assignment of key staff, procurement of resources needed to internally support the execution of project tasks, initiation of subcontractor planning and coordination tasks, schedule the assignment of the project team, etc. The Project Start-up fee is billable within 30 days of the initial Project Plan and initial project control documents being delivered.

Project Scope Revisions and Clarifications

The Contractor and the County will review and agree upon the initial revisions and clarifications to this scope of work after completion of the Gap Analysis Phase.

Deliverable: Project Scope Document (as agreed between Contractor and the County)

Project Work Plan

The Contractor shall meet with the County within thirty (30) days of contract signing to review the detailed planning calendar, or Project Work Plan, with County staff. The Project Work Plan will expand upon the delineation of tasks identified in this Scope of Work, indicating responsible parties, estimated effort, projected time frames and task dependencies. This Work Plan will be revised during the initial phases of the contract as the additional information becomes available, further defining project tasks. The Contractor will provide to the County a Project Plan on a bi-weekly basis, along with a bi-weekly status report, for review and discussion. Further, should any changes to the critical path items of the Project Plan occur during the two-week period, the Contractor will review discuss the impact of these changes with the County.

Deliverable: Initial Project Work Plan

User Training Plan

A general training plan will be developed in conjunction with the Phase 1 work plan, subject to refinement during the implementation and County approval. The plan will be executed during the training phase.

Deliverable: Initial Training Plan

The above items will be addressed at a relatively high level, but in sufficient detail to identify the priorities for the different system and project elements so that the project work plan tasks can be properly coordinated for timely implementation.

Phase 2: Requirements Analysis:

Gap/Fit Analysis

The Contractor and County staff will meet for a series of interviews between the Contractor project team, the County managers, power users and end users. The purpose of the Gap/Fit Analysis is to document how the County currently does business. This process allows the Contractor to understand the business process of the County and identifies any specific configurations and modifications that will be needed. Also evaluated during the Gap/Fit Analysis are interfaces and technical aspects of the system. A part of the Gap/Fit Analysis is a system walk-through using the demo system. During this walk-through the Contractor and the County will review current system operations and data files and the treatment of Assessment and Collector Functions within *ias*World. The walk-through further allows the identification of any changes and modifications that will be needed to meet the County's required business processes.

Deliverable: Document describing Contractor's understanding of the County's business processes.

Site Specific Modifications to be made to Base System by Contractor

The Contractor and the County will identify candidate *ias*World modifications, including interfaces to other systems, as a result of the Gap/Fit Analysis. The Contractor will produce an estimate of the development effort in hours for each candidate change. The County will review the list of changes and direct the Contractor as to which changes the County wants made. The Contractor has included up to four hundred (400) hours for requested changes. Of that batch of hours, two hundred (200) hours will be used to implement those modifications defined by the Gap/Fit Analysis. The remaining two hundred (200) hours will be used to implement the *i*Maintain functionality. The County will only pay for the actual hours used by the Contractor to complete the requested changes, and hours in excess of the four hundred (400) hours included in the base, will be billed at the Contractor's prevailing Time and Materials rates.

Deliverable: Document describing, at a high level, how various "gaps" between the iasWorld functionality and the clients business processes will be resolved.

Hardware Validation and Final System Architecture

The Contractor will work with the County to validate the hardware and any 3rd party dependent software for the install and make any recommendation for configuration changes. It will be the responsibility of the County to pay for these changes.

Deliverable: Documentation of Hardware Environment.

Refined Scope of Work

The Contractor and the County will refine the project scope based on the Gap/Fit Analysis. This will set the scope of the rest of the project and be the basis for revisions to the project plan. The Refined Project Scope Document will receive County's approval before the Plan is delivered. Any scope changes made after the Refined Project Scope Document has been delivered, will need to be in writing to the Contractor and are subject to additional fees and shall be handled through the County's change order process.

Deliverable: Refined Project Scope Document
Deliverable: Revised Project Plan

Data Conversion Source File

The County and the Contractor will review source files and source file descriptions so that the County will provide the Contractor with an acceptable file and file layout of the County's present data for converting into the new system.

Phase 3: Software Installation:

Install *ias*World

The Contractor will install its current release of *ias*World on the designated hardware (or alternate hardware to be provided by the Contractor, should hardware installation be delayed) to be used to conduct a detailed system walk-through as a point of reference for defining the Detailed System Specifications and determining the detailed conversion requirements.
Deliverable: County Performance of iasWorld Module Checklist

Phase 4: Implementation

System Implementation and Set-up Definition

The County and the Contractor will define and document the *ias*World set-up and configuration necessary to meet the County's requirements as part of the Gap/Fit Analysis.

Modification Specifications

The Contractor will, based upon the information gathered during the Gap Analysis, develop detailed system modification specifications for each of the *ias*World modules.

In conjunction with this effort, the Contractor will provide firm estimates of the programming effort for the modifications.

The County will develop specifications for the various reports and other outputs which have been identified as its responsibility in conjunction with the system walk-through.
Deliverable: Detailed System Modification Specifications

Sign-Off on Modification Specification

The County will review and upon approval, sign-off on the detailed specifications developed by the Contractor within ten (10) days of delivery (by module or sub-module). The approved specifications will be the basis for the Contractor's modification effort.

Implementation Parameters

In addition to reviewing the parcel level data, the Contractor will provide specifications and or instructions to the County for setting up the various reference tables used by *ias*World, including cost tables, land pricing tables, and various edit tables.

Programming Supervision

The Contractor will integrate the County modification requirements into its overall *ias*World release plan to facilitate the baseline of as many of the modifications as are reasonably feasible and mutually agreed to, minimizing the ongoing support issues relative to custom code. Scheduling of the modifications will take into account the release plans for the various subsystems as well as the extent of the modifications and the coordination of the completion of the modifications with the system test, conversion and implementation plans.

System Test Plan

The County and the Contractor will develop an outline for system testing which provides guidance for the County and Contractor staff in testing the modifications as part of overall product acceptance testing.
Deliverable: Written System Test Plan (as agreed between Contractor and County)

Programming Modifications

The Contractor shall make necessary modifications to the *ias*World modules in accordance with approved modification specifications including site specific printed reports such as batch and on-demand tax bills.

Data Interfaces to Existing Systems

The County and the Contractor will review, determine, and define an agreed to format for interfacing

the County's present Geographic Information System with the new public access system.

User Documentation Updates

The Contractor will review and update current documentation to reflect the modifications which are developed as part of this modification effort.
Deliverable: Revised Documentation

Phase 5: Data Conversion

Data Conversion Programming

The Contractor will map out the data, write scripts to convert the data, and load the data to the iasWorld database.

Conversion of Electronic Information

The Contractor's approach to conversion is to develop a series of Intermediate File Layouts (IFL's). Data from each client file or database is extracted into the IFL format. Standard programs then upload the data into the appropriate *ias*World tables. These programs will be tested against sample data files in advance of the production conversion. The Contractor will request balancing reports from the County to use in verifying the results conversion process.

The Company assumes that the County will be responsible for creating an extract file of the existing data and related valuation tables to an agreed upon structure. The County will provide the Company with documentation for the existing files, reference tables, valuation tables, computational procedures, etc., and make source code for programs available as needed to clarify the computations of the current system.

The County will provide flat files and file layouts of the data to be converted. Flat files will include a tax year to facilitate the loading of historical data. Since *ias*World is a multi-year system, the conversion of historical data will be directly tied to the appropriate tax years. The Company assumes that the County will provide the history data extracts in the same file format as the current year data.

The Company will convert the data as stipulated in our proposal. This includes up to 5 years of history and the following files:

Assessor:

- Real Estate File consisting of Residential, Agricultural and Commercial
- Comments File
- Tiff Image File
- Mobile Home File
- Personal Property File
- Personal Property Master
- Comments file associated to Master File
- Personal Property Detail
- Sketches and JPEG Photos

Collector:

- Real Estate consisting of Residential, Agricultural and Commercial
- Comments File
- History file shows changes to records
- Personal Property

- Master File
- Detail File
- Comments File
- Master History
- Detail History
- Merchant File
- NIDS File
- Rates Table by year

Conversion Assistance in Testing and Loading of Data Files

The Contractor will assist the County in loading converted data for the various *i*asWorld modules. Quality control and verification of data is the responsibility of the County, with Contractor assistance.

1. Contractor and County will load existing data into *i*asWorld structure.
2. Contractor and County will conduct Data Load Test with various reports for validation.

Responsibilies for Data Conversion

The conversion process involves the following steps:

- Obtain files from the County.
- Obtain balancing reports from the County.
- Determine the *i*asWorld database modules implicated.
- Identify the number and type of columns in each *i*asWorld database table.
- Set the conversion mapping from the legacy systems to *i*asWorld.
- Run the conversion programs to create the various files in the IFL format for iasWorld.
- Import the tables into *i*asWorld in the appropriate sequence using the standard conversion programs.
- Generate totals for balancing record and parcel counts and assessed, appraised, tax value totals.
- Run batch edits to identify data failing user-defined *i*asWorld edits. (These may prevent properties from processing successfully in *i*asWorld without correction.)
- Load applicable edit tables, land pricing tables and, if applicable, cost tables.
- Run *i*asWorld land valuation and cost procedures.
- Run value comparisons to identify properties for which the land or improvement values are significantly different. Research recurring differences to verify that there is not a systematic conversion issue.

The County staff will be involved in spot checking selected parcels to verify that all of the data from the old records have been captured through the conversion process (this will also serve to familiarize the staff with where the data has been mapped in the new system). The County staff will report any discrepancies they are unable to resolve. The County will be involved working the edit and value comparison reports and resolving those error conditions that will prevent *i*asWorld from functioning correctly. Edit and value comparison reports are then worked with the County to clean up and balance the conversion.

Data Conversion Controls

The establishment of control totals and computed values from the current system are critical in validating the converted files and tables. The Contractor has extensive experience in converting real estate assessment and valuation data from paper and digital records. The Contractor has an established

procedure for checking converted data from the existing system reports versus those generated by the target system. The controls generally fall into three categories.

The first category is the data that must match exactly such as:

- Number of parcels
- Appraised value
- Assessed value
- Exemption value(s)

The second category is the Control totals which are produced at least at the following levels:

- Jurisdiction wide totals
- Neighborhood totals
- Smaller geographic areas as identifiable from the County digital records

The third category, of course, is a sampling of parcels that are selected to make a field-by-field comparison of data. For example, when a categorical variable is mapped from the existing system e.g., "1 = ranch" we need to ensure that the same result is obtained in the target system.

Data verification procedures will be included with the conversion procedures. As indicated above, the initial conversion reports will identify those properties for which the converted data produces a value that is substantially different from that which was computed under the existing system. Subsequent analysis (sales ratio studies, multiple regression analysis models, etc.) of converted data will identify the need for review of key property characteristics.

Final Conversion and Loading of Data Files in Conjunction with Phased Implementation

Following the conclusion of testing in each phase, the County and the Contractor shall re-extract, convert and load then current County data into the *ias*World Property Tax Engine table structure, based upon the phased System Implementation Timetable. Quality control and verification of data is the responsibility of the County.

1. The Contractor will assist the County in loading existing data into the *ias*World structure.
2. The Contractor will assist the County in conducting the final Data Load Test with various reports for validation.

Phase 6: Training and Documentation

Delivery of Documentation

Prior to the Acceptance tests, the Contractor shall deliver to the County system documentation and training manuals in various formats for the operation and maintenance of the system. Such documentation shall include:

1. Up to five (5) copies of the applicable sections of the *ias*World User's Manual. This manual will be tailored to document the appropriate modules purchased by County. The Contractor will also furnish one (1) copy of the *ias*World User's Manual in machine-readable format.
2. The County may photocopy or otherwise reproduce the Contractor's copyrighted documentation

and training materials for training of other internal uses provided that the Contractor's statement of copyright be included on each copy.

3. The Contractor will provide a secure login and password to the *i*asWorld support site, which allows access rights to all documentation, FAQ's, Training Tutorials and links to online Training Seminars.

County Personnel Training

1. The Contractor shall develop a training plan in conjunction with the County which establishes the staff to be trained and general topics to be covered over the course of a series of eight (8) total weeks of training sessions through the phased installation and implementation period. For each session:
   A. The Contractor shall prepare and review with the County a pre-training report identifying any system level options that should be decided prior to the training session. The County shall select the appropriate options, and the training sessions will proceed with these options in place.
   B. The Contractor shall provide on-site training for the specified days for staff designated by the County.
   C. Training Recording. The Contractor gives permission to video record training sessions, on-site or off-site. The County agrees to limit the use of resulting video records to internal County uses and agrees to hold the Contractor harmless from any law suits or consequential damages, including attorney's fees, occurring from the taping or review of the taped sessions.

2. The County also has four (4) total weeks of business process support to be used at their discretion. This is typically used after go-live when a client desires to have a Contractor staff member present during key points of the County's business cycle.

Phase 7: iasWorld iTools

Software & Services to be Implemented:

The following Software & Services will be licensed and delivered as part of this Agreement:

- Web Services Framework (*i*Enable)
- Public Access (*i*Care)
- Spatial Analysis (*i*Analyze)
- Taxpayer Correspondence Management (*i*Respond)
- Electronic Document Management Interface (*i*Doc)
- Hosted services for Akanda hosted environment

Web Services Framework (*i*Enable)

The objective is to install and configure the base web technology frameworks called *i*Enable Enterprise. This is the common base technology used by all of the *ias*World applications included in this Contract.

The project team will assign a technical resource to gather and document the information needed to setup and configure the environment, including but not limited to:

- Users (who is known to the system),

- Roles (specific users having access to specific business transactions),
- Security profiles (users having limited rights to access specific transactions),
- Interface defaults (digital dashboard configuration)
- Property Records Manager (PRM) used by secure internal users for data searching, list management and pre-defined reporting.
- Content for default portal environment styles and templates (logos, colors, fonts, language)
- Interoperability plans (external system connections, external data sources, external security policies)

The initial installation, setup and configuration of *i*Enable will take place at Akanda's staging (hosting services) data center. As part of this project implementation, most of the iasWorld applications will be hosted at Akanda for the initial setup and configuration tasks beyond March 1, 2008. Akanda will then host the *i*Care and other *i*asWorld productivity tools through February 29, 2008. Prior to the end of this agrement, the applications will be transitioned to the County's servers. *i*Care and other *i*asWorld productivity tools can optionally continue to be hosted by Akanda, as part of a separate support and maintenance agreement.

Public Access (*i*Care) Implementation

*i*Care is a commercial, off-the-shelf (COTS) web application that allows the contractor to easily setup and configure the application to meet the needs of the County in regards to providing an advanced citizen-facing web portal. This portal selectively exposes all of the *i*asWorld information content, provides citizens with simple and complex search tools, and includes optimized one-click access to common reporting. All data content is web linked providing citizens with unparallel simplification to property ownership and tax information, including history, GIS, photos, and sketch data.

The implementation team uses the standard *i*Care setup and configuration methodology which is documented within the *i*Care startup guidebook. The County and the Contractor will review the guidebook and document site specific setups, as required. Existing *i*Care sites can be used for reference during the review process. A typical timeline to deploy *i*Care is forty-five (45) days from the date data is available in the *i*asWorld format.

As part of the parallel synergy of implementation, the project team by default, implements the *i*Care application with the setup and configuration of *i*Analyze and *i*Respond. Tasks such as documenting site specific setups will all be conducted at the same time for each of the three modules.

After the initial setup and configuration of *i*Care, the Contractor will continue to host the production version (released to the anonymous public) for the remaining months available defined by the hosting period. The hosting period starts on the first day *i*Enable is setup at Akanda's hosting data center (whether staging or production). The contract includes the first twelve (12) months of hosting services. The annual renewal of hosting services, if required, will be included within the separate support and maintenance agreement.

*i*Care and other *i*asWorld productivity applications can continue to be externally hosted by Akanda, as an optional deployment approach. For this contract, the Contractor will transition all *i*asWorld applications to the County's compliant data servers, after the initial setup, configuration and testing is completed.

Spatial Analysis (*i*Analyze) Implementation

*i*Analyze is a commercial, off-the-shelf (COTS) web application that allows the contractor to easily setup and configure the application to meet the needs of the County in regards to providing an advanced assessment analysis tool. *i*Analyze assists the property assessment process by providing a single integrated environment that combines statistics, charting, GIS, tabular and reporting. Appraisal staff will use this application to supplement their best practice methods, including the ability to compare common analytical models. Whether the appraisal process involves sales ratio studies for market analysis, or supporting and defending sales comparables, *i*Analyze will be the application of choice.

As mentioned, *i*Care and *i*Analyze, along with *i*Respond, will be implemented and delivered as a delivery grouping. A typical timeline to deploy *i*Analyze into production, including the steps to define site specific setups, configure the application and provide orientation sessions for application users is forty-five (45) to ninety (90) days from the date *i*Care is in staged mode.

The project team will assign a technical resource to document County specific setups, including analysis methodologies, such that *i*Analyze can be configured to meet the County's need for enhanced appraisal analysis methods.

The *i*Analyze application will be setup on the Akanda hosting center for setup, configuration and testing. The production configured version will be transitioned and setup on the County's internal data center environment, during the scheduled installation tasks for other *i*asWorld modules.

Taxpayer Correspondence Management (*i*Respond) Implementation

The business purpose of *i*Respond application involves the coordination, delegation and follow up of all customer inquiries, which are often tabled by various ways such as telephone calls, website inquiries, or walk in traffic at the office counter. *i*Respond allows the County staff to log, assign, track and close out activities in a timely manner, including activities created internally. This application is used throughout all business processes, but especially so during the appeals hearing process, where it provides an invaluable function in combination with the installed hearing tracking module.

A typical timeline to deploy *i*Respond into production, including the steps to define site specific setups, configure the application and provide orientation sessions for application users is forty-five (45) to ninety (90) days from the date *i*Care is in staged mode.

The project team will assign a technical resource to document County specific setups, including reviewing current methods, such that *i*Respond can be configured to meet the County's need for improved citizen service metrics.

The *i*Respond application will be setup on the Akanda hosting center for setup, configuration and testing. The production configured version will be transitioned and setup on the County's internal data center environment, during the scheduled installation tasks for other *i*asWorld modules.

Electronic Document Management Interface (*i*Doc) Implementation

Many *i*asWorld customers recognize the need to store their organization's existing paper documents as scanned documents within an EDMS. There are many sources in the marketplace for EDMS solutions, but a stand-alone EDMS does not meet the needs of many *i*asWorld customers for the simple reason that they desire a tight level of integration between *i*asWorld and the EDMS. In particular, they would like for parcel-related documents to be directly accessible from *i*asWorld's parcel information displays. Tyler and our business partner, Akanda has responded to this demand by creating an EDMS integration module as part of the *i*asWorld total Property Tax solution. This section of the Scope of Work provides a summary of the Contractor's planned functionality of this module as part of this contract.

*i*Doc is the *i*asWorld module responsible for managing the interface with the County's EDMS solution. *i*Doc allows files in various formats to be associated with specific accounts (either parcel-based or personal property) within *i*asWorld. Once these stored documents are associated with accounts, they can be accessed from within *i*asWorld wherever account information is displayed.

Electronic documents can optionally be directly stored within *i*Doc. These documents are stored in whatever format they are provided in, although Akanda does recommend the use of Adobe Acrobat format wherever possible for its portability.

As part of this effort, *i*Doc will be setup and configured at the Akanda staging (hosting) center. After this initial setup period, the application will be transitioned to the County's internal server environment. A typical timeline to deploy *i*Doc into production, including the steps to define site specific setups, configure the application and provide orientation sessions for application users is sixty (60) to one hundred twenty (120) calendar days from the date *i*Enable is in final staged mode.

The implementation team will set up *i*Doc on the County's Staging site on the servers at the Akanda Hosting facility. The site will be configured according to the configuration defined in the finalized *i*Doc workbook that is completed by the County. After the *i*Doc workbook is completed by the County and reviewed by the implementation team, the following tasks will occur:

Review of the Staging site with the stakeholders after the site has been configured.

Completion of final minor configurations changes to the Staging site based on the issues that the stakeholders log.

Notification to the stakeholders that the issues have been resolved and that they should review the final configuration at the Staging site

One month prior to the installation at the County site, the Contractor will provide a list of dependent software and other set up that the County must have installed and completed on the County supplied server(s) 2 weeks prior to Contractor's arrival onsite.

One month prior to the installation, the implementation team will provide Pre-installation checklist that the County must complete and return to implementation team, two (2) weeks prior to implementation team's arrival onsite.

After installation on the County server(s), the implementation team will walk through the installed *i*Doc module with the stakeholders, using the standard demo script, which touches on various aspects of the *i*Doc module functionality.

The County shall provide a VPN account or dial-up access to the Contractor for use in implementing and troubleshooting any issues.

The County must have the server(s) prepared and ready with the dependent software already installed on the server(s) as per the specifications that the Contractor will provide no later than one (1) month prior to the installation. The server(s) must also be set up on County's network. This must be completed two (2) weeks prior to implementation team's arrival onsite.

iDoc is designed to support the development of connectors allowing it to work with most widely-used enterprise-level EDMS products such as Microsoft Sharepoint, Xerox DocuShare, Hummingbird DM, and FileNet Content Manager. These connectors work with the EDMS's published API, allowing iDoc to add, modify, query, and manage documents stored within the EDMS.

The iDoc interface is based on the standard web service model. Included in our base contract price is sixteen (16) hours identified for the iDoc interface to the County's Fidlar EDMS. Should this interface effort exceed these sixteen (16) hours, additional compensation may be negotiated.

Phase 8: Web-based User Interface (*i*Maintain)

The *i*Maintain phase is concerned with the installation, setup, configuration and optimization of the user data maintenance environment, called *i*Maintain. The business purpose of the *i*Maintain environment provides the County with an expansive, web-based, task oriented, transaction environment that streamlines and simplifies the business processing of assessment and taxation tasks.

Refer to the overview of iMaintain in the software description exhibit.

The *i*Maintain application to be installed at the County is a highly configurable environment such that the needs of a particular County can be met without changing source code.

*i*Maintain will be initially configured at Akanda's data center for the purpose of allowing the County's staff to review the setup and configuration of all applicable baseline *i*Maintain transactions and user interfaces. All site specific setups and modifications will be applied to the staged version and the County staff will participate in the review and approval of such changes.

The following tasks are concerned with the overall *i*Maintain requirements, setup, configuration, and installation at the County.

- Receive Sample Database (from the data conversion task)
- Akanda loads sample data on Staging Server DB
- *i*Maintain module configuration on the Staging Site
- Load of Base Transactions to staging site
- Test basic module functionality

- Identify which transactions will be deployed for client
- Activate identified transactions for County
- Identify County Site-specific transactions
- Generate County List of Value (LOV) tables
- Setup *i*Maintain Roles, Users & Content Configuration
- Role creation/configuration and User assignment to roles
- Content Configuration
- Setup *i*Maintain 'On Demand Reports' configuration
- Transaction Template Configuration
- Setup/confirm required LOVs for deployment
- For each transaction, modify the baseline template to meet site specific requirements
- Transaction Quality Assurance
- Regression testing of transaction
- Ensure correct LOVs are being displayed
- Modify transactions/templates per QA feedback
- Release Transactions to County for review
- Train County on the general user/role security, *i*Maintain interface
- Walk through each transaction with the County, highlighting features, changes and general usage (this is not full class room training. It is introductory training to give the County enough knowledge to test the transactions)"
- Receive feedback on additional changes that may be required
- Template enhancements as needed
- User Acceptance Testing
- County reviews transactions, tests basic operation and business rules on Staging Site - based on QA scripts
- County signs off on transactions
- Install transaction on County's Test Environment
- Verification of Transactions in Test Environment
- Identification of additional configuration parameters
- Final Configuration
- Install transaction on County's Production Environment
- Additional Configurations applied to Production Environment if necessary
- Verification of Transactions in Production Environment
- County sign off
- Formal class room training for all transactions
- Release into Production

Phase 8a – Site Specific Setup Review & Documentation

The Contractor shall review and use the set of *i*Maintain transactions that have been configured for other Missouri customers as the base transactions for Jefferson County. This set of Missouri based transactions, as implemented in Fulton County, should meet the majority of the County's requirements with little or no configuration changes.

Should configuration changes be required, the Contractor has included up to two hundred (200) hours to complete this effort as part of this base contract. Should the *i*Maintain implementation take less than 200 hours, the remaining hours can be used for other site-specific configurations through the term of this agreement. Should the configuration change effort require more than two hundred (200) hours, then the

additional effort will be provided upon the mutual agreement between the County and the Contractor as to the scope and fee for the additional configuration changes, with the terms of any such agreement to be set forth as a future amendment to this contract.

The process for defining the County's requirements is a series of walkthrough sessions to agree on the setup and configuration required. Initial presentation of the Missouri *i*Maintain baseline transactions as generically configured for the County will be done via access to the Contractor's staging (hosting) facilities.

In general, initial activities including the walkthrough sessions will be performed using a staged version of the application. Once the walkthrough sessions are complete and application setups are complete, the module would then be installed on County computer facilities for production purposes.

Phase 8b – *i*asWorld Set-up/Configuration, Modifications, Testing

The Walkthrough setup document defines the amount of services required to setup and configure *i*Maintain to meet site specific business functionality required by the County. The project includes an estimated block of hours to perform these tasks. After the Walkthrough document is completed, the Contractor and the County will review the budgeted effort in comparison to the exact effort to meet the desired requirements.

Listed in the tables below are the baseline transactions and general features that will be provided to the County as part of the *i*Maintain application. Transactions represent business functions that are processed by the County, condensed into a single browser data maintenance interface. Associated to each transaction is a series of master user interface templates (similar to forms). During the setup process, business 'roles' will be defined and master templates will be associated to these roles. Selected templates will be modified to simplify the total amount of fields required for data entry roles, thereby streamlining the overall interface and increasing usability and efficiency.

The listed general features are independent of the following baseline transactions, but they will be made available when appropriate for a particular transaction. The following list of baseline transactions may include transactions that are not applicable to the County's business processes, but are included for completeness.

No.	**Baseline Transactions**
1	Owner Transfer
2	Residential CAMA
3	Commercial CAMA
4	Legal Description
5	Notes -1
6	Notes- 2
7	Notes -3
8	Homestead
9	Farm Use

10	ASMT
11	Commercial Income
12	Condo
13	Copy a Parcel
14	Re/Deactivate
15	Special Assessment: Projects
16	Special Assessment: Solid Waste
17	Special Assessment: Maintenance
18	Split a parcel
19	Combo
20	Conveyance
21	Real Estate Transfer
22	Exemptions
23	Manufactured Homes
24	Tenant Values
25	Personal Property (Ohio specific)
26	Personal Property
27	Central Assessment
28	Tax Adjustment: Parcel District Maintenance
29	Tax Adjustment: Adjustment
30	Tax Adjustment: Charge
31	Tax Adjustment: Escrow Interest Adjustment
32	Tax Adjustment: Deferral Maintenance
33	Tax Adjustment: Payment contract unapplied
34	Tax Delinquency: Foreclosure
35	Tax Delinquency: Bankruptcy
36	Tax Delinquency: Levy
37	Tax Delinquency: Payment Contract Plan
38	Tax Delinquency: FIFA DQ18
39	Tax Delinquency: Certificate of Delinquency
40	Tax Delinquency: Forfeited Land
41	Tax Collection: Mailing
42	Tax Collection: Returned Mail
43	Tax Collection: Notes -4
44	Tax Collection: Payer Update

44a	Tax Collection: Payment Posting
45	Tax Collection: EFTS
46	Tax Collection: Reversal/Void
47	Tax Collection: Refund
48	Tax Collection: Escrow Plan
49	Tax Collection: Escrow Scanned
50	Tax Collection: Batch Pay Review: Lockbox
50	Tax Collection: Batch Pay Review: Mortgage
50	Tax Collection: Batch Pay Review: Batch Pay
51	Ag Recoup
52	Alternate Owner
53	Alternate Address
54	Alternate PID
55	Sales History Maintenance
56	Hearing Track Valuation by PID
57	Hearing Track Scheduling

Note: The above *i*Maintain transaction types require access to the underlying iasWorld application business rules and data schema and as such are dependant on the customer's right-to-use license for each dependant iasWorld application.

Other General *i*Maintain Feature Descriptions
Future Year - Display the fact that data for a future year exists for a transaction. This could be an icon or the value of the highest tax year. The initial GET could include this in the xml and it could be saved in the transaction table to make subsequent retrievals more efficient. **Multi-Yr & Multi-Jurisdiction** - Users need to be able to query a parcel with tax year and Jurisdiction as part of the query keys. Most current IAS screens allow a wild card query by year and the ability to scroll through the years. On most sites there is only one Jurisdiction and even on Multi-Jurisdiction sites most users only maintain one Jurisdiction. **Security by Year** - Users need to be prevented from changing data in some tax years while they can change others. Currently IAS divides the security by previous, current, and future years with a permission flag for each. Currently in most cases users can query data for any year but are limited in what they can change. Similarly, users need to have permissions limited by Jurisdiction. Currently a user profile allows a user to only query and update one Jurisdiction or all Jurisdictions'. A possible enhancement is a profile where a user may have access to a list of Jurisdictions and update permissions on all or none or a subset. **History Display** - There is an icon on the current client server screens, which allow a user to display all the versions of data for a table. This view is read only and works like a "toggle." The user can scroll through the various versions and examine the history of changes.

Audit Display - Currently a user can use an icon to highlight in color fields on the screen, which have changed since the last version of the data. A different color is used for database changes, changes made on the screen since querying the data, and both. There is a table, which can be used to limit which fields are highlighted although this is less important. For iasWorld the screen changes would be any since the data was read from the database. This is needed for both the current data and history.

On-Demand Print - Currently administrators can run any IAS stored report, which meets certain query criteria to an *i*asWorld UI form or menu location. A login staff member can then access these reports via the *i*asWorld UI. Usually these are related to data on the screen which pass field and search parameters to the requested report. Example reports such as PRCs, tax bills, exemption applications, etc. are typically executed for the parcel displayed on the screen. The resulting report in PDF format is usually sent directly to a local or network accessible printer.

Sketch Display - Graphic display of image screen capture.

Sketch Edit - When data is keyed into a sketch vector field (VECT) the data needs to be edited to be sure there are no errors which prevent drawing the picture. There are current C and COBOL programs, which do this. The edit now occurs after the cursor leaves the vector field. The current sketch edit also computes the area and perimeter of the segment.

GIS Link - Link to maps where available.

ADDRINDX - This table has alternate addresses for a property. Columns in the table link it a table/row for the parcel. The table also has to be considered for address queries.

ALT-INDX - This table has alternate keys for a property. These may be something like a legacy parcel id or special pointers, which may not exist for all parcels. There may be more than one alternate id on a parcel. Users may want to query a transaction using the alternate id.

OWNALT - This table has alternate names for a property owner. These are such things as a business name or alternate name. Columns in the table link it a table/row for the parcel. The table also has to be considered for owner queries.

Master Index (Bk, Pg, Subdiv) - These are queries on an index screen, which produce a list of one or more parcels a user can then select which one he wishes to query. The user also may want to return to the list to pick another parcel.

Option/Switch to Query Deactivated Records - Users normally do not want to see deactivated records. However, many screens have a switch, which allows the user to include them in the query for when they want to see the data or need to reactivate. On a deactivated record the only field that can be maintained is the deactivate date. However, if it is removed other data can be changed.

Highlighting By TAXYR - To help avoid changing data in the wrong tax year users want a strong visual clue for which year they are working in. The *i*Maintain header bar provides a color association to Tax Year to assist the user with a visual cue.

EDMS Link - Link to EDMS where available.

Photo Link - Link to pictures where available. This may be Landisc™ or other source such as a directory of jpg files.

Sketch Mouse Draw - Using a mouse to draw and change a sketch.

Sales History Maintenance - When some sales (based on defined criteria) are added to the database a copy of the CAMA data is stored in a set of separate sales history tables. The key to this data is the salekey rather than the parcel id. If the data at the time of sale was different from the data copied the user may want to update the sales data. This will require parallel transactions for RES CAMA and COM CAMA using the sales history tables with salekey as the primary key. The user may want a pull down list of possible sales for a parcel id to identify which sales need to be changed. Users may also want to have an icon to recopy the current data for a parcel or table into the sales history tables. The initial creation of the sales history tables is handled within the database and should not require any special *ias*World logic.

On-Line Help – On-line help will be browser base.

PHASE 8c – *i*Maintain install at Customer Hosting Center

During this contract stage, all *i*Maintain transactions and supporting setups are transitioned to the customer's hosting center. Project team members will provide post installation assistance to customer administration staff.

Phase 9: Project Close-out and Transition to Support

Final System Acceptance

The County will sign off on the delivered system upon successful completion of integrated system testing. Preliminary modules (impacted by subsequent deliveries and updates) will be flagged as conditional sign-off, pending testing of the final deliverables.

Non Phase Items

Project Management

The Contractor shall provide day to day management of the project activities including coordination of County and Contractor resource needs in scheduling meetings, review sessions, following up with Contractor staff, subcontractors and County on respective commitments.

Billing will be a level monthly amount

Optional Activities:

The Contractor shall be available to the County to address any optional activities as requested by the County.

1. The County shall notify the Contractor in writing of any optional activities it wishes to include, and approximate timetable.
2. The Contractor shall respond in writing to the County on cost and timing of requested optional activities.
3. The County will notify the Contractor in writing confirming acceptance of cost and timetable.
4. The Contractor shall perform optional activities as agreed.

Project Payment Schedule

Implementation Services (Level Monthly Billing)	Fee	When Invoiced
	$30,985	February 1, 2006
	$30,985	March 1, 2006
	$30,985	April 1, 2006
	$30,985	May 1, 2006
	$30,985	June 1, 2006
	$30,985	July 1, 2006
	$30,985	August 1, 2006
	$30,985	September 1, 2006
	$30,985	October 1, 2006
	$30,985	November 1, 2006
	$30,985	December 1, 2006
	$30,985	January 1, 2007
	$30,985	February 1, 2007
	$30,985	March 1, 2007
	$30,985	April 1, 2007
	$30,985	May 1, 2007
	$30,985	June 1, 2007
	$30,985	July 1, 2007
	$30,985	August 1, 2007
	$30,985	September 1, 2007
	$30,985	October 1, 2007
	$30,985	November 1, 2007
	$30,985	December 1, 2007
	$30,995	January 1, 2008
Total	$743,650	

First Annual Maintenance Contract to begin 3/1/2008 and will be covered under a separate agreement.

*ias*World

Baseline Description

Presented by

Tyler Technologies, Inc.
CLT Division

3199 Klepinger Rd.
Dayton, OH 45406

tyler
clt division

An Overview of *ias*World

Tyler | CLT introduced *ias*World, the latest release of its proprietary property tax system, in 2002. As a next generation product, *ias*World was engineered to leverage Tyler | CLT's Integrated Assessment System database engine while taking advantage of the emerging development technologies. By building upon years of industry-leading expertise, Tyler | CLT developers brought together decades of experience with the technology of the future.

*ias*World was developed with a modular design, allowing each jurisdiction to select those modules that meet their immediate requirements, while allowing for future expansion to other modules as needed. These modules are characterized in two categories: the Property Tax Engine and Productivity Tools. Each module within these two functional groups can individually provide tremendous power; but, when combined, the strength and value of the system is maximized.

Property Tax Engine

The Property Tax engine is powered by Oracle® which has been the underlying database foundation since Tyler | CLT introduced its original version of IAS in 1989. The associated modules running on this engine in *ias*World make up the underlying intelligence of the system. The Property Tax Engine modules include:

Administrative	Valuation	Tax
AA (Required Module)	CAMA	Tax Extension*
Inquiry & Appeals Tracking	Personal Property	Tax Billing & Collection
Conveyance	Manufactured Homes*	Delinquent Tax
Animal Registration*	Natural Resources*	Apportionment & Settlement*
Landisc™		Financial Accounting*
		Estate Tax*
		Cashiering/Revenue Collection*

***Not included with this agreement.**

More detailed information on each of these modules is contained in the following section entitled "Property Tax Engine."

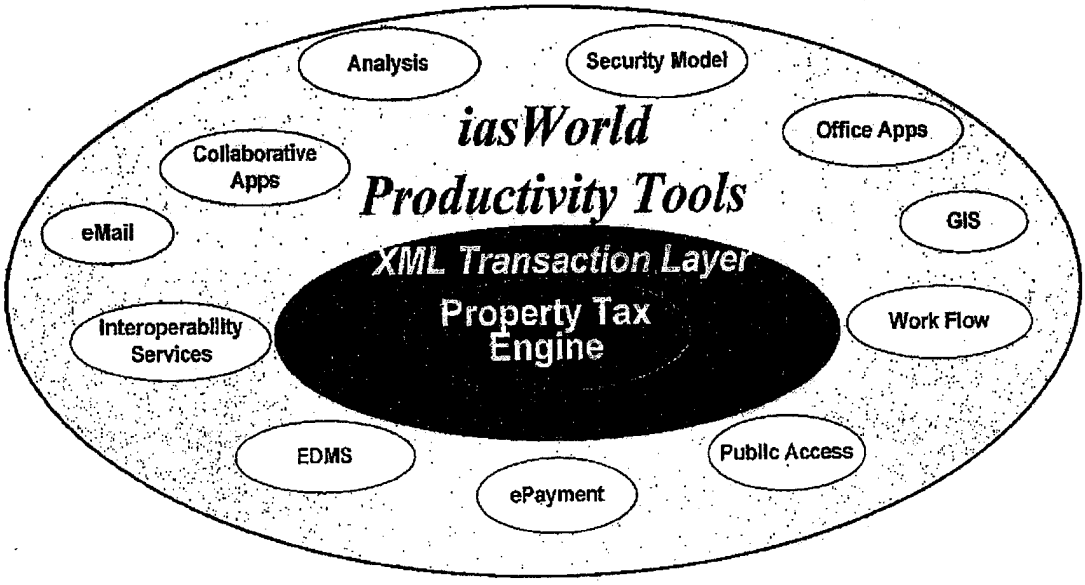
Application Functionality/Productivity Tools

The *ias*World application functionality is built upon the core Property Tax Engine using state-of-the-art technology. The browser-based design sets this product suite apart from any other in the market, fully addressing the enterprise needs of the modern assessment and tax agency. *ias*World provides improved presentation, maintenance and analysis for property tax administration through the following modules:

- System Framework (*i*Enable)
- Configurable, Work Flow Enable Data Maintenance (*i*Maintain)
- Spatially Enabled Assessment Analysis (*i*Analyze)
- Public Access (*i*Care)
- Generic Electronic Document Management System Interface (*i*Doc)
- Messaging Framework to Manage Customer Correspondence (*i*Respond)
- Mobile Solutions, Take *ias*World into the Field (*i*Field) ***Not included with this agreement.**
- Electronic Payment (*i*Pay) ***Not included with this agreement.**

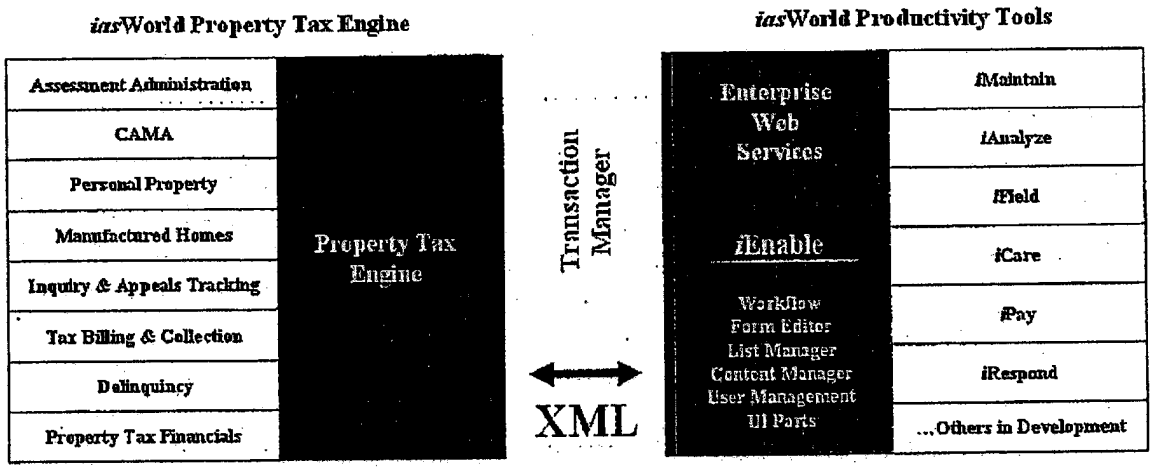
*ias*World Application Functionality provides solutions for the enterprise built on modern internet, spatial, workflow, and collaborative technologies. All *ias*World Application Functionality modules serve user interface screens in a standard web browser (Internet Explorer 6.0). In this environment, the availability of applications, functions and data elements are controlled through User Roles defined for classes of users. This allows certain functional and data subsets to be configured on a user class basis.

*ias*World Application Functionality delivers enterprise oriented solutions via an advanced n-tier web-enabled framework, application customization tools and specialized vertical application modules. This functionality allows customers to configure and optimize their workflows by customizing web forms and the associated work transactions.



Leverages *ias*World Property Tax Engine

*ias*World Application Functionality is a suite of business process oriented functionality which leverages Tyler | CLT's industry proven Property Tax Engine. Business process driven transactions are managed via a sophisticated XML based transaction layer.



Microsoft .Net Architecture

*ias*World is based on an n-tier model built on the Microsoft .Net architecture. The data marshalling between tiers is via XML and presentation is managed, in general, via XSL. Systems integration is facilitated through the provisioning of web services via iEnable framework components.

Introduction

This document is a Baseline Description of the *ias*World solution's Property Tax Engine. The following pages will provide some background on how the Property Tax Engine maintains data associated with property assessment and taxation. *ias*World's Property Tax Engine is a fully integrated computer system that contains seven core modules: Computer Assisted Mass Appraisal (CAMA), Assessment Administration (AA), Personal Property (PP), Tax Billing and Collection (TBC), Inquiry & Appeals Tracking (I&AT), Delinquent Tax (DQ), and Manufactured Homes (MH). Each of these modules can incorporate sub-modules that will assist your Jurisdiction in proper data maintenance. The seven main modules are discussed in this document.

The sections in this document include:

- System Overview - This is a brief description of the system and each module.
- System Architecture - This section describes what type of database the system is built upon and how that database is used to calculate data.
- *ias*World Property Tax Engine Modules - This section describes how the seven main modules are used in the overall property assessment and taxation process. Each section also contains brief descriptions of the major reports associated with each module.

The face of property appraisal for the purpose of taxation has changed over the years and Tyler | CLT has changed with the times. Since 1939, Tyler | CLT has been involved in property appraisals throughout the United States and Canada. What started out as a property appraisal firm has grown to become a leader in the computer technology associated with property tax administration.

As more housing developments pop up each year, and taxation laws change, it is hard to find software that can keep up with local Jurisdiction needs.

Originally developed in 1989 as IAS, the latest release *ias*World, has evolved into the most complete property tax administration software package available to the local governments in the United States and Canada. *ias*World's Property Tax Engine has the ability to support the following Property Classes and Property Tax functions:

Property Class (Type)

- Residential
- Agricultural
- Commercial
- Industrial
- Natural Resources
- Tangible Personal Property
- Motor Vehicles
- Manufactured Homes

Property Tax Function

- Assessment Administration
- Computer Assisted Mass Appraisal
- Tax Billing & Collection
- Delinquent Taxes
- Inquiry & Appeals Tracking
- Tax Extension
- Conveyance
- Estate Tax

iasWorld's Property Tax Engine Can Adapt to Law Changes

In 2000, a Western state passed a law that limited the amount an assessed value could increase in a year for residential use parcels (including commercial buildings such as apartment complexes). This meant that the Property Tax Engine client had to implement a major change to its assessment processing within a few months. The law, like most property tax laws, was complex in the details of how the rules were applied. Jean Hostetler, a Tyler | CLT business analyst, read the materials provided by the client and presented two options for implementation using the baseline Property Tax Engine product. After a discussion, the client chose one. Changes were made to the Property Tax Engine parameters for the 2001 tax year (the old rules remained in place for earlier years). Two county employees did the actual implementation within a week. No programming changes were required. This is just one example of the flexibility of iasWorld's Property Tax Engine.

How does iasWorld work in the everyday processing of data associated with property appraisal? What valuation approaches are supported by iasWorld? Does it keep a history of the parcel? Can it handle personal property valuation? How are tax bills handled? This document will answer these and other questions.

System Overview

*ias*World's Property Tax Engine is a software solution designed to meet the needs of the property tax function of local and state governments. It is modular in design and is built upon the ORACLE® relational database platform.

The Property Tax Engine is organized in the modules shown below:

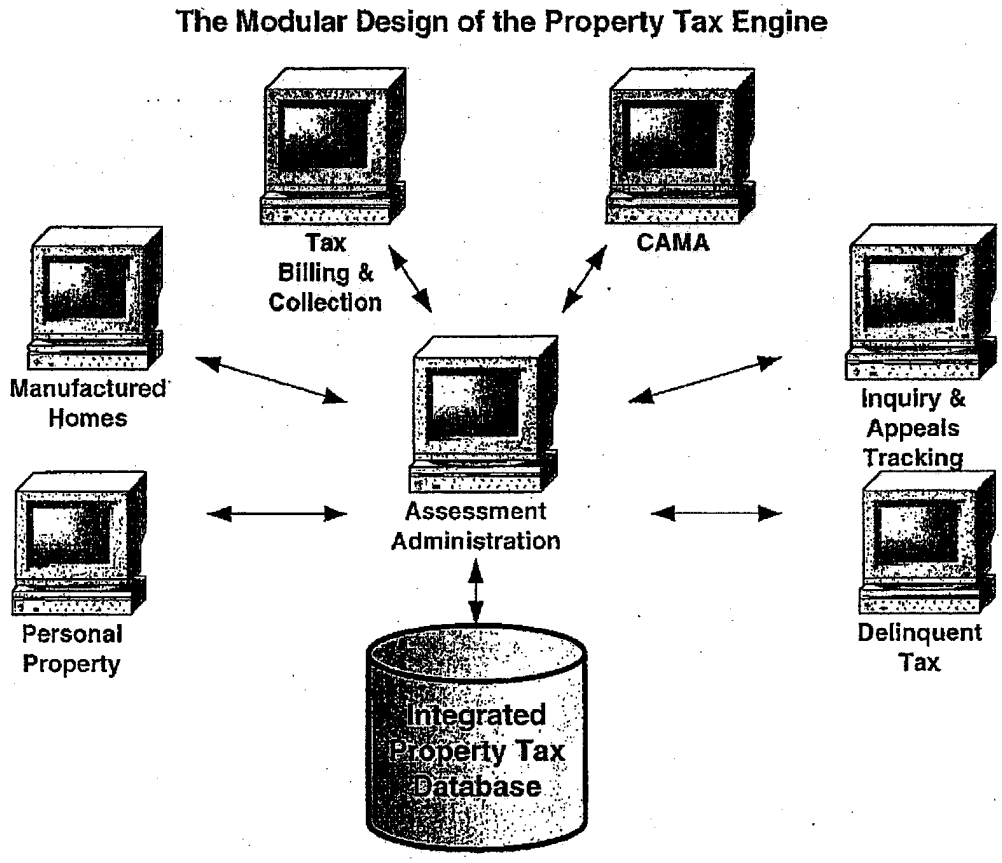


Figure 1. Property Tax Engine Structure

All modules are tightly integrated through the common Oracle relational database and have been developed using Oracle Developer 2000® tools. The user has the ability to easily access all data elements within the application database via various screens or report writing capabilities. The application has a complete Graphic User Interface through the use of *ias*World's Productivity Tools modules. The online menus and drop down menus can be customized per site to meet the Jurisdiction's terminology and office procedures. The Oracle database also has the ability to accommodate very large volume database and user requests. The following is a brief description of the modules and their capabilities.

Computer Assisted Mass Appraisal (CAMA)

This portion of the system maintains a database of property characteristics from which appraised value estimates are developed. It supports the three approaches to value: cost, sales comparison (regression and comparable sales) and income, using valuation tables and algorithms which offer the appraiser flexibility and ease of use. CAMA supports classification of properties, land and improvements, for purposes of determining the assessed values used in calculating taxes. CAMA provides a variety of reports required for reviewing individual properties and assessing the performance of the valuation and review efforts.

Within CAMA is a Classified Use Valuation subsystem. Land is appraised on the basis of its fair market value and classified use. This subsystem provides the mechanism for applying use value tables or crop, age, or income use values and tracking both market and use value on each parcel.

Personal Property

The Personal Property valuation module interfaces with other Property Tax Engine modules by sharing Assessment Administration (AA) account records, but it can also function as a stand-alone system. In addition to the AA information, Personal Property facilitates the receipt and processing of property returns from taxpayers, the computation of an assessed value, and, in case of failure to report, a mechanism for forced valuation of the property. The Personal Property module also provides auditing features to assist users in verifying the reasonableness of a return.

Assessment Administration

The Assessment Administration module maintains the ownership, mailing address, legal description, property classification, and appraised and/or assessed value(s) for properties maintained in the Property Tax Engine. It may include information for Real Estate or Personal Property in addition to other types of property such as Manufactured Homes and Livestock. The module produces the assessment roll which lists each property in a jurisdiction and the total assessed, exempt, and net taxable values residing in that jurisdiction. The information residing in the Assessment Administration module is the primary source of value information used to extend taxes in the Tax Billing and Collection module of *ias*World's Property Tax Engine.

Tax Billing & Collection

The Tax Billing and Collection module performs the primary functions of extending, maintaining, collecting and distributing property taxes. The module extends taxes through the use of values maintained in the Assessment Administration module and jurisdiction rates maintained in the Tax Billing & Collection module. In this module, taxes may be paid in real-time through a Tax Billing & Collection form or by setting up an interface for a separate cashiering application. In addition, tax payments made through mortgage companies, lock boxes, or other forms of mass payment entities can be processed using batch payment transaction applications in the module.

The distribution of collected property tax funds to individual jurisdictions is a major function of the Tax Billing and Collection module. This process allows for the interface of fund distribution to separate financial applications for general ledger activities.

Inquiry & Appeals Tracking

The Inquiry & Appeals Tracking module tracks the scheduling and disposition of properties being appealed. The hearing process can be defined by Jurisdiction to support multiple levels of appeal. The Inquiry & Appeals Tracking module allows the user to define the hearing process for a particular Jurisdiction.

Delinquent Tax

The Delinquent Tax module is used to maintain delinquent property tax accounts. The module tracks and maintains functions such as payment processes, calculation of interest, bankruptcy, and foreclosure.

Manufactured Homes ***Not included with this agreement.**

The Manufactured Homes module allows the Jurisdiction to maintain and track manufactured homes valued as either Real Property or Personal Property. The Manufactured Homes module allows maintenance of data, including the Parcel ID of the associated land, make, model, serial number, and other identifying and descriptive data.

Integrated Financials ***Not included with this agreement.**

*ias*World Financials is an automated General Ledger and Accounts Payable system that is integrated with the Property Tax Engine's Tax Billing and Collections module.

System Architecture

The essential points of the Property Tax Engine software architecture are as follows:

Programming Languages

- Oracle RDBMS
- Developer 2000 for all forms, some reports
- SQLPlus for some reports
- PL/SQL with database engine
- COBOL

Calculations

- PL/SQL
- stored as database items
- The use of objects; e.g. dwelling valuation, in which the dwelling is composed of additions plus other sums. If there is a change in an addition, the dwelling value changes accordingly.

Data Organization

*ias*World is a multi-year and multi-cycle system. *ias*World has the capability to store an unlimited number of tax years and it can apply different valuation and taxation rules for each year. The capability is also there for the Property Tax Engine to support an unlimited number of versions of the data within a tax year. This feature provides for a complete audit trail of user-maintained data.

Future Growth and Scalability

*ias*World is well positioned for future system growth and functional scalability. *ias*World started as a Tax Billing and Collection system for the State of Ohio. Since that time, functionality has been added to include Computer Assisted Mass Appraisal, Personal Property Administration and Valuation, Manufactured Homes, Natural Resources Valuation, and Inquiry & Appeals Tracking. Enhancements in the flexibility of the Property Tax Engine have increased such that it is currently installed in over twenty states and one Canadian Province.

Oracle is well known for its technical capabilities and the continuous improvement and updating of its product offerings. As Oracle makes advances in technology, they are incorporated into the *ias*World architectural scheme when beneficial to the product. The Oracle database engine is known for its scalability with respect to database size and transaction volume handling, so as Jurisdiction needs for data storage and transaction volume grow, the scalability is available.

One particular aspect of the Oracle 9i database platform that also relates to scalability is the near linear performance improvement that can be achieved by additional servers available to the application.

Recommended Tools

The tool we always recommend with *ias*World's Property Tax Engine is Oracle's Discoverer Product. It is a user-friendly ad hoc reporting tool. Other than that, the functionality of *ias*World is self-contained. That said, there is nothing to preclude the use of third party products as long as they are capable of querying the database.

Structure

The Property Tax Engine is designed as an object relational database. The relational description means that the data is stored in tables in a relational database. The object portion means that the business rules relating to the tables are also stored in the database.

There are two definitions of object. An object is an element of the system that is the combination of data and business rules. These objects map to the things a user of the system sees and does. Objects can also combine and nest together to produce the complete system. Thus, a dwelling may be an object. A parcel is also an object that is the combination of objects including the dwelling, land, etc.

The second definition for object is the Oracle term for items in the database. These are various types defined by the Oracle architecture, which can be divided into objects that contain the data and those that contain the rules.

Objects Containing Data

The type of object that is a combination of data and business rules contains or provides a way of accessing the data.

Tables

Tables contain all the actual data. They are defined as a group of columns. Columns are sometimes called fields or data items. A row is one set of columns. The whole table is a set of rows. Within the Property Tax Engine the tables can be broken into five types:

- **Data Tables**-Data tables contain actual data. These include descriptions and values. Most data tables are tied to a parcel. This is the data the system holds and manipulates. New parcels, dwellings, or whatever may be removed or added. A new tax year may require freezing the old data in time. New rates may require new values.
- **Rate Tables**-Rate tables contain factors that are used to compute values. These change as conditions require: a revaluation or tax calculation or other change in computed results.
- **Parameter Tables**-Parameter tables define the business rules. These define the definition of codes in a table, the meaning of a field, the method of calculation, the rules for calculation, edits of the data, and other things which describe how the system should work.
- **System Tables**-System tables are used by the system to track and do its work. These are usually not changed directly by users. The contents are changed by the system as it processes. These contain data such as error logs, processing status, and system version information.
- **Temporary Tables**-Temporary tables are used by processes - usually reports - to hold information compiled by the process. They usually are used to improve performance.

Views

Views are an alternate method of looking at tables. They are actually stored as SQL statements but are accessed like tables. They provide an easier or more efficient way of accessing part of a table or a combination of tables.

Synonyms

Synonyms are alternate names for a table or view.

Snapshots

Snapshots are copies of a table or view that are stored as a table. They may be created so that data from other databases appears as part of the user's database. They may also be built from complex views to improve performance. They need to be refreshed as the data in the tables is changed. Snapshots reference changes.

Indexes

Indexes are built to improve performance in reading data from a table. An SQL statement will provide the same results whether an index exists or not. When an index exists on some columns in the database, Oracle can use the index to only look at some of the rows in the table to see which ones meet the requested conditions. Without an index, Oracle has to read and examine every row. For some queries, an index can produce a huge improvement in performance.

Indexes are also used to edit rows for uniqueness. This helps maintain database integrity. Indexes used for this are defined as UNIQUE. In this sense, they are used to enforce business rules. The selection of indexes in IAS is based on our knowledge of the relationships and business rules for the tables.

Objects Containing Rules

Most objects, which define the rules in the Property Tax Engine, contain program code. This code is written in SQL and Oracle's programming language, PL/SQL. The code reads data and processes it, often to write other data.

Functions

Functions are program elements that are called, with or without input parameters, and return a single value. They are not used to change any data in the database directly. One characteristic is that they can be called from an SQL statement.

Procedures

Procedures are program elements that are called, with or without input parameters, to perform some logic. They may return one or more values as output parameters. They may also update the database.

They must be executed from a PL/SQL block or from SQL*PLUS with an EXECUTE statement. Some procedures are used to maintain the database.

Packages

Packages are bundled groups of functions and procedures. Oracle executes code within packages more efficiently than functions and procedures compiled outside packages. It is also an easier way to manage a large number of those objects. The current release has almost 200,000 lines of PL/SQL code in packages.

Some Property Tax Engine packages are used to perform global functions, such as common calculation functions, error processing, and edit processes. Other packages and processes such as batch jobs and forms use these.

External programs such as forms (screens) use other packages. These handle data manipulation, field edits, pulldown logic, interfaces for the databases for displays, etc. Others perform calculations and other functions within modules. These process the individual business rules for modules.

Others manage processes that are performed across modules. These include functions such as automatic parid id assignment, parcel locking, copying parcel data, etc.

Packages have two parts. The package header defines the functions, procedures, and their parameters. The body contains the program code.

Triggers

Triggers are routines called when an event happens in the database. The event is usually the update or insert of a row. They update the maintenance and timestamp information. Triggers are used to version tables. They also may edit the data, call calculations, synchronize the data with other tables, or update fields.

Sequences

Sequences are called to produce the next number in a series. They produce numbers and keys for a variety of functions, such as sales history (the salekey), automatic parcel id generation, and payments.

Property Tax Engine Objects outside the Database

While the data and rules are stored in the database, there is a need to access this information. This is usually done through software such as screens and reports. These are stored in files outside the database to create the client portion of the system.

iasWorld uses other files for the client part of the system. SQL code (*.sql) is used to create the objects, run reports, and do a variety of other tasks. Some reports are written in Oracle Reports (*.rdf,*.rep). Others are COBOL or C and the executable (*.exe) is provided. Forms (*.fmx) also require libraries (*.plx) of common code, icons (*.ico), logos (*.tif), and parameter (*.ini) files.

These programs are stored on a forms and/or reports server. They make calls to the database or interact with each other. The presentation of data from the Property Tax Engine is the primary purpose of these items. The actual storage and processing of data occurs within the database.

Dependencies

Oracle maintains a list of dependencies between objects. This list is consulted whenever an object is recompiled in the database. This insures that as objects are changed related objects remain synchronized. Any problems that may occur will be identified before they impact work done on the system.

Relationships between Tables .

The primary key of most tables is defined by a unique index. In iasWorld, these usually are named as the table name followed by _u. The primary key is also normally the first column on the table. Commonly used foreign keys are given another index.

The overall system design is based upon the idea that the application revolves around a set of objects referred to as parcels. These objects may be grouped together in various ways to form groups.

Individual parcels are assembled from other objects. Different classes of parcels are composed of different types of objects. For example, the data describing dwellings is different from that describing personal property.

A given class of objects may be used by one or more parcel types. Some objects are composed of sub-objects, which may also be composed of other sub-objects, etc.

Data Defined by Tables

Allowable Values

The Property Tax Engine has tables to assign allowable values. These determine the allowed codes and what they mean. The System Administrator can define the values allowed in the table and their meaning.

Edits

A table allows the creation of edits on fields that have been coded for them. The user can define an error message. Using a negative value for the results sets a hard edit; a positive number makes it a warning. Range edits and special cross edits can be entered.

Processing Options

The Property Tax Engine provides alternative methods of valuation for many types of property. For example, residential valuation can compute each element of a property to include the grade and

depreciation factors or compute each part as the base value and apply the grade and depreciation factors to the total.

Commercial valuation can use the Tyler | CLT method or Marshal & Swift® (MSW).

Setting the appropriate flag produces a full audit trail of all changes. Setting the flag keeps versions for all changes when appropriate while not setting it during test cycles such as cost table calibration prevents expanding the database.

User-Defined Fields/Calculations

Many of the fields commonly used for property tax processing are built into the system. In some cases, there is information that may be desired by some sites and not others. Sometimes just the label of a screen needs to be changed to match local terminology.

In some cases, these definitions are coded into the processing options. At other times, they are coded in a table.

The *ias*World Property Tax Engine contains a large number of user-defined fields. These are often labeled as USER1, USER2, etc., up to the number that is defined for the given table.

User-defined fields can also be defined to affect the calculation of a value. Placing a predefined calculation function name in the Function field does this.

Summary

It has been discussed how the object structure is used to create the functionality of the system. Users can define data and calculations to meet their requirements while sharing the same program code with other users with different requirements. As legislative and other desired changes occur they can often be implemented without requiring the programs to be changed. Additional functionality can usually be added without changing the way things work for users who do not want to use it.

PROPERTY TAX ENGINE MODULES

This section describes how the seven core modules are used in the overall property appraisal process. Reading this section will give you an idea of how each module can handle everyday data entry processes. The following modules are discussed in this section:

The main modules

- Computer Assisted Mass Appraisal
- Personal Property
- Assessment Administration
- Tax Billing and Collection
- Inquiry & Appeals Tracking
- Delinquent Tax
- Manufactured Homes ***Not included with this agreement.**
- Property Tax Financials ***Not included with this agreement.**
- Cashiering ***Not included with this agreement.**

Each module description contains the purpose for the module, an overview of its functions, brief descriptions of how it manages data, and major reports associated with each module.

Computer Assisted Mass Appraisal (CAMA) Module

Purpose

The CAMA module is a complete and accurate tool for the appraiser to set equitable property values. It maintains a database of property characteristics from which appraised value estimates are developed. It includes the necessary valuation tables and algorithms to support the three approaches to value: cost, sales comparison (regression and comparable sales) and income. CAMA permits classification of properties, including both land and improvements, for purposes of determining the assessed values used in calculating taxes. It includes a range of reports required for reviewing individual properties and assessing the performance of the valuation and review efforts.

CAMA General Description

Equitable Market Values

The system supports the three approaches to value (cost, income, and sales comparison) necessary to establish fair, uniform, and equitable market values for various types of properties required by state statute. When properly applied to a database of up-to-date property characteristics, and when subjected to review by experienced appraisers and/or valuation analysts, the CAMA system will meet the objectives of generating equitable market values. The term sales comparison is used here in place of market to emphasize that when properly applied, all three methods are designed to estimate the fair market value of a property.

Land Valuation

Land in the Property Tax Engine is valued on a market basis using one of five measurements: front foot, square foot, acreage, gross, or site value. The front foot method provides for a depth table adjustment. All methods provide for the application of influence factors to adjust the base value of parcels whose land is atypical of the neighborhood.

Land valuation is an integral part of producing the property value under the cost approach, i.e., Land + Building = Parcel Value. It is assumed that the land value allocation developed above will apply to all valuation of the property (market and income).

The CAMA module provides for Computer Assisted Land Pricing (CALP) that allows the appraiser to set up a series of land models for lots, square foot, and acreage entries to cover the range of land prices in the Jurisdiction. The appraiser then specifies, on a neighborhood basis, the applicable land model for parcels in that neighborhood. The system automatically applies the unit prices from the model to each parcel, making the adjustment for excess size. Other land factors affect value, and so model rates can be adjusted by zoning, street, location, and utilities. The system will allow multiple land lines to be associated with a single property.

CALP is applied to both residential and commercial properties. The land values it provides can be adjusted by applying influence factors or re-specifying the land breakdown, as appropriate, or the land values can be overridden by inputting the desired unit price.

Land models entered into CALP can be developed in several ways in the Property Tax Engine. The most frequent approach is to execute a series of report templates that provide vacant or abstracted land values (land residuals) from sales. These can be expressed on per front foot, per square foot, per acre or site value basis. They can be sorted by neighborhood and other user-specified criteria. Statistics (average, low, and high) can be obtained from these reports and used in establishing benchmark models.

Classified Use Valuation

The CAMA module also provides for a Classified Use Valuation subsystem. Land is appraised based on both its fair market value and its classified use. This subsystem provides the mechanism for applying use value tables, such as crop, age, or income use values. The system can then track both market and use value on each parcel. Land valuation is based on use (pasture, tillable, etc.) and soil (actual soil or soil class) or any four user-defined classifications. User-definable rate tables are then set up for each classification as appropriate. If the land is used for farming, different yield rates can be applied based on year planted. The Property Tax Engine allows for land line assignment of acreage by soil type. Override adjustments can be made at the line level. The system also provides for the recoupment of taxes if land is taken out of the preferential treatment program.

The Cost Approach

Cost value estimates are computed in the CAMA module using the cost methodology developed by Tyler | CLT during its sixty-year-plus history as an appraisal company. This methodology is widely accepted and forms the basis for the Illinois standard Appraisal Manual and the statewide CAMA systems in Kansas, Montana, West Virginia, Wisconsin, and Wyoming. The cost tables for each class of property are indexed to facilitate adjustments for time and location differences. Users with proper security can access the cost tables to modify unit values for individual construction components such as yard and miscellaneous improvements.

The cost tables used in applying these cost models are standard Tyler | CLT base tables. These tables can be tailored to match the cost level in the Jurisdiction by conducting a cost index study that determines the typical (mean, median) ratio between actual new construction costs and the estimated costs established by applying the base tables. Sometimes changes in building practices or local conditions will require an adjustment to the rate or value for one or more of the base cost components. Occasionally, new structures, features, or components will be encountered which require additions of new codes and prices to the tables. The design of both the residential and commercial cost algorithms readily supports these types of user modifications.

Residential Cost Valuation

Residential cost valuation uses a base price for a standard structure, with additions and subtractions for variations from that structure. The standard structure is a 1200 square foot 1-story frame ranch with no attic, central heat, and plumbing fixtures. Adjustments are made for differences in heating, plumbing, basement, attic, finished basement, rec room area, unfinished area, fireplaces, and miscellaneous other features.

The cost of additions are calculated at a dollar/square foot rate, with the ability to make size adjustments using a constant and a square root term. Additions may be graded and depreciated separately from the main dwelling.

The CAMA module provides the ability to make adjustments using factors based on neighborhoods and class codes of improvements.

Commercial Cost Valuation

Two cost methods are available for commercial structures, Tyler | CLT and Marshall & Swift. Only one method may be used for a given tax year.

The commercial structure is viewed, for pricing purposes, as consisting of sections and levels, each of which can be depreciated separately. Each level can have its own story height, construction type, plumbing, heat, etc., on which to base its valuation. To this end, the computed RCN, percent good, and

RCNLD are stored for each level. Other feature values are added into the section line on which they are located, so that they are depreciated in accordance with the physical condition and functional utility rating of that line.

There are some differences between the data collected for the Tyler | CLT cost approach and the data collected for Marshall & Swift. In both methods a base square foot rate is established based upon structural components, with adjustments for certain conditions. The Tyler | CLT method tends to build a base rate from a "lowest common denominator" and then make adjustments for any variations in exterior and interior factors. Marshall & Swift has separate rate tables for different quality levels of the same structure type, and makes fewer adjustments to the base rate. Marshall & Swift includes time and location multipliers. Both methods produce an RCN, which is then depreciated to produce the building RCNLD. Both methods support all appropriate rates depending on building use and type. Both methods calculate a perimeter area ratio using exterior wall sizes applied to wall height. Story adjustments are made where appropriate.

Condominiums

The Condo Master screen allows information for the individual condominium complexes to be stored. Each unit type within the complex is identified, as well as the areas, rates, and any value adjustments. The system offers numerous variables such as location, floor, view, and amenities to value condominiums. Final values will optionally include a percentage of ownership of land or building from the condominium master.

Property Sketch

Sketches are drawn with a point and click utility (Mouse Sketch) integrated into the *ias*World screens. The sketch is stored in a vector format. These vectors are stored as character data, e.g., U25R40D30L20U5L20 (up 25 feet, right 40 feet, down 30 feet, left 20 feet, up 5 feet, left 20 feet), and can be entered and maintained manually as well as through Mouse Sketch. The vectors are edited for closure and areas computed. If the vectors do not close, the system will display the line that needs to be reviewed for errors. Simple rectangular additions may be described by providing the starting direction and second dimension, e.g., R20x10, which (assuming a clockwise direction) would be translated R20D10L20U10. Mouse Sketch provides the ability to maintain a set of sketch vectors previously entered to define the perimeter of the main dwelling and its additions. A computer-printable sketch can be produced with area computations and dimensions.

The areas calculated from the vector sketch are written to the file and used for subsequent valuation processing. The capability to sketch angles other than 90° and the ability to sketch arcs and circles is also provided. The user only enters manually calculated areas if a structure is so irregular that it cannot be sketched. For commercial structures, both areas and perimeters are computed from the sketch vectors but do not update the areas/perimeters used for determining value—this allows the appraiser latitude in sectioning and applying adjustments for common walls.

A graphics sketch display uses the graphics mode of PC workstations to display the line work, dimensions, and labels of the perimeter sketch. This feature also tiles the different areas of the sketch with different colors or shaded patterns. The graphic sketch allows isolation by floor level and zooms in and out for varying scales.

Sub-area codes are displayed to the right of the sketch with the calculated square footage amounts. An alphabetical code is tied to each individual sub-area and displayed within the sketch to show the location.

In the CAMA module there is no limit to the number of additions that can be vectored and calculated. Any addition can be vectored or entered as a manually computed area regardless of its order in the sequence of additions. Individual addition vectors can be maintained without the need to re-key the

whole vector. In sketching structures, miscellaneous buildings can be located in relation to the main structure without being drawn, using the Mark command.

Upon original conversion, iasWorld's Property Tax Engine will batch load the building sketches and vectors into the database.

Other Building and Yard Improvements

Miscellaneous (OBY) commercial and residential items are supported in the Property Tax Engine. Valuation is table-driven, allowing rate flexibility using size adjustments and a grading system. The Property Tax Engine also allows for other modifications, including obsolescence and override capability.

Sales Comparison and Multiple Regression Analysis

The market sub-module produces market value estimates using MRA/comparable sales. It can extract sold properties from the master file and build a sales history file for sales analysis purposes. The flexible design of the market sub-module allows users to:

- Process complete multiple regression analysis modeling within IAS.
- Import coefficients from a stand-alone modeling program.
- Enter coefficients for sales adjustment.
- Calculate value based solely on comparable sales.

Regression Analysis

The system features constrained multiple regression analysis (MRA) modeling, designed for the appraiser's ease of use. Constrained regression modeling permits the appraiser to specify the property factors to be considered in each model and an acceptable range of values on the coefficient of each factor. For example, due to the mix of sales available and the property factors considered for a particular model, a factor such as detached garage area comes into the unconstrained model with a coefficient of $4.53. The appraiser/ modeler wants a coefficient between $8.00 and $10.00 per square foot and, by specifying this as a constraint, will force the factor into the model at $8.00. Constrained regression automatically adjusts the coefficients of the other factors to obtain the best least squares fit.

Constrained regression is especially helpful in market areas where lack of sales data makes it impossible to develop a complete market model. Appraisal knowledge combines with actual sales to provide better models.

The system allows the user to create a number of models within the Jurisdiction, each applying to a neighborhood or group of neighborhoods. Within a neighborhood, further subsets may be created based on a user-defined data item.

The system supports up to 99 candidate variables for use in regression and market valuation. It does not place a limit on the number of observations (sales) in a modeling run. Up to 59 of the variables can be specified as candidate variables for a specific regression model. An unlimited number of variables version is also available, but is not usually practical due to performance issues. The market valuation subsystem allows the creation of new variables for valuation. These can be based on algebraic, exponential, logarithmic, and trigonometric functions among others.

The constraint feature allows the user to control the inclusion or exclusion of specific variables. The data extraction sub-module includes features for the linearization of assigning weights to coded variables in the database. The Edit and Expansion sub-module allows the user to create transgenerated variables using arithmetic or algebraic terms. The Edit and Expansion module also allows the user to expand classification or discrete variables into binary (yes/no) variables. They are then assigned individual

coefficients, aggregated into groups, or weighted into a linearized value, for use in modeling and/or comparable selection.

The system generates numerous performance statistics.

The software, through its transgeneration capability, supports log-log or linear-log models.

Comparable sales is the primary factor in determining the sales comparison value, and hence primary emphasis in modeling has been placed on calibrating models that provide reasonable adjustments to be applied in adjusting comparables.

However, the modeling capabilities are quite powerful and can be used in analyzing other property characteristics and value indicators.

Comparable Sales

The comparable sales sub-module uses a Minkowski metric to determine comparability of sales based on user-assigned Selection weights. The module relies on regression coefficients to adjust comparable sale prices to the subject property.

When creating comparable sales selection criteria, the user specifies each variable as continuous or discrete. Discrete variables apply the weight to the comparable sales price if the variable value of the sale is not identical to the subject. Weights are assigned which cause the comparability distance metric to make rational trade-offs between significant differences in various essential property characteristics.

In other words, the system searches for comparable sales within the neighborhood group. If there are not five highly comparable sales within the group, it will then search all of the sales for the subject property's cluster, a superset of all properties exhibiting similar market behavior.

The user can calculate comparables for one parcel, a group of parcels, a neighborhood or the entire file.

The user specifies the property characteristics to appear on the report and the selection weights. The adjustments are normally the MRA coefficients from the model and used to value the subject parcel.

These comparables are used in conjunction with the MRA model to generate an estimate of the market value of the subject property. This estimate can then be correlated with the cost approach on a single field review document known as a comparable sales report.

There is a series of detail market screens that allow for comparable sale review, criteria selection, and model results.

Non-Linear Methods

Other model calibration methods can be implemented. The export features of the Property Tax Engine can be used to download CAMA data to personal computers for input to PC-based modeling packages that perform feedback analysis (Adaptive Estimation Procedure), non-linear regression, etc. These models can be applied to properties and the resulting value estimation imported back into the *ias*World database.

The CAMA module of *ias*World currently supports third party statistical analysis interfaces such as SPSS.

Income Valuation

Income models for various types of income-producing property in different geographic areas (neighborhoods) are maintained in the system and applied consistently to each property with the appropriate characteristics. The potential net income streams are then capitalized to provide estimates of value in accordance with the income approach. The application of gross rent multipliers or gross income multipliers is available as part of the model approach for appropriate types of properties. Several

analytical tools including MRA are available to the user for the purposes of gross rent or gross income multiplier studies.

Statements of actual income and expenses can be used to calculate an income value using several methods, including GRM, GIM, mortgage equity, discounted cash flow, property residuals, and direct capitalization. These methods have corresponding review screens for valuation. The user chooses the most appropriate final value.

The *ias*World income approach allows the user to choose between an income model approach and the use of actual income and expense data. The income model approach uses the description of the property laid out in the collection of improvement characteristics for the cost approach, as the basis for aggregating areas and units against which income and expense models will be applied. This income model approach is a *ProForma* type approach. Use of actuals is implemented by entering income and expense detail developed from owner statements. Several calculation methods are available to compute a final income value. The appraiser compares both the modeled and actual income values and chooses the most appropriate value estimate.

The income model approach contained in the system performs valuation by income capitalization for all types of commercial properties, including apartments, hotels, motels, offices, retail, warehouses, auto service, banks, restaurants, and fast food. There are 25 pre-defined categories installed with the base system, and the user can define others.

The income model approach differs from traditional computer-assisted income valuation techniques in that it does not require income data on each property. Income models may be developed through external spreadsheet analysis of income and expense data or by utilizing computerized modeling software such as the MRA module in IAS to analyze the data. Models are developed on the basic physical characteristics collected on the standard Commercial/Industrial data collection form. Valuation results may be adjusted for exceptional properties by inputting income quality rating, expense adjustment factor by age, occupancy adjustment factor, and capitalization adjustment level. Provisions are included for excess acreage valuation.

Value Reconciliation

The CAMA Appraised Value screen is a final value screen where the user chooses which method of valuation is applied to the parcel. All three estimates (with both market comparables and regression estimate for the market approach) are written to the database. Any one of these values can be selected as the final value, or an override value can be entered for the parcel.

*ias*World allows for a last review date on the value reconciliation screen and supports re-costing and assessment posting from the value reconciliation screen.

CAMA Data Management

The CAMA module provides a complete database of property characteristics. Here is a **partial** list:

Parcel

- Neighborhood
- Map/Routing
- Location Address
- Property Use and Classification
- Zoning and Municipality
- Topography
- Utilities
- Reason for Change Codes

- Economic Condition Factor
- Exemption Percent

Land

- Size (front feet, square feet, acres, units)
- Land Code (use)
- Influence Factors
- Classified Use (soil, etc.)

Residential

- Story Height
- Style
- Construction
- Year Built, and Effective Year Built
- Basement and Attic
- Heating and Heating System
- Miscellaneous Features
- Fireplaces, Stacks, and Openings
- Additions (separately graded and depreciated)
- Grade
- Condition, Desirability, Utility (CDU)
- Physical, Functional, Economic Depreciation

Condos

- Type
- Level
- View
- Complex Name and Number
- Unit Number

Commercial

- Structure Code
- Year Built, Effective Year Built
- Construction Type
- Area by Section
- Wall Height
- Number of Stories
- Interior Condition
- Attached Other Features

Income

- Tenant Name
- Rental Income
- Other Income
- Expenses by Type

- Area
- Income and Expense Dates
- Contact Info

In addition to these maintainable fields, intermediate and final value calculations are stored in the database. There are also a number of user-defined fields available for locally significant characteristics not included in the pre-defined characteristics.

CAMA Reports

The CAMA module provides a number of pre-defined reports. These include:

Appraised/Assessed Value Listings - The system provides the ability to print appraised/assessed value listings for the Jurisdiction, sorted by parcel identification and/or map and routing number, account number, and owner's name. These listings contain, at a minimum:

- Neighborhood or Tax District
- Parcel I.D. and/or Map and Routing
- Account Number
- Number of Acres
- Class of Property
- Improvement Value
- Land Value
- Total Value
- Totals are produced by property use code within neighborhood or tax district

Valuation Report - Value Change Abstract - Assessor's Final Report – Using the value change reason codes in the system, the user can track all value changes as to amount and reason, and produce a detail report listing all value changes, the reason(s) for those changes, and the total changes by tax district and reason code within each class. This report provides the Assessor/Appraiser with the necessary information for documenting the updated value abstract and for tracking and documenting value changes that may result from Formal Appeals proceedings or subsequent Court action.

Impact Analysis – This report provides detail and summary information as to the change in value due to reassessment by property class and tax district. It can be used to evaluate the impact of the reassessment before release of new appraised values, i.e., to identify any shifts in value between classes, within neighborhood, etc.

Impact Notice – This is a taxpayer information document that presents the new appraised value to the taxpayer in light of the taxes that the taxpayer would pay on the same property prior to revaluation and after revaluation. The taxes before revaluation are calculated based on previous assessed value (adjusted for any inventory changes) and previous effective tax rate. The "impact" taxes are calculated based on the new assessed value and an "impact" tax rate calculated by assuming the same fiscal requirements (effective tax rate times tax base) as the previous year, i.e., Impact tax rate = Old Tax Base times Old Tax Rate divided by New Tax Base (excluding New Construction).

The impact notice shows the taxpayer that, even though the assessed value may have increased by a significant percentage, the taxes will not necessarily increase by this same amount. Moreover, in fact, for some properties the taxes may decline if the new assessed value shows a smaller increase in value relative to other properties.

Data Mailer – Property Description Report - A data mailer can be produced that will show selected physical characteristics of properties on the database. These can be mailed to taxpayers for verification of information or sales verification based on ownership change.

Property Review Document – The CAMA module produces a detailed field review document that lists all of the property characteristics organized by building. An expanded version of the report includes the income model approach for commercial properties. This document may be used for field audits (data verification and review), picking up new construction and alterations, or value review.

Value Change Report – This report in the CAMA module produces a standard value report that compares the prior year value to the new value and the percentage of change per parcel.

Field Work Sheet – A field work sheet can be produced that will store the needed information for the Appraisal staff to take to the field, including assessment data, permit data, ownership data, and sketch of property.

Agriculture Rate Table List – This report contains all crop or soil and use types in the table and the associated rate.

Agriculture List by Parcel – This report prints all Agriculture types per parcel along with Owner Name, Classified Use Application Number, Class, Range-Tract-Section, Appraised, and Assessed Land.

Agriculture List – This report prints totals by Agriculture Category or Tax District.

Current Classified Use Valuation List – This report prints all parcels on the Current Classified Use Valuation program. It contains Parcel ID, Application Number, Owner Name, Classification, Acreage, Appraised Values, and Mailing Address. This report may be in Owner Name, Parcel ID, or Application Number sequence.

Current Classified Use Valuation Applications – The system generates the classified use applications.

Computer-Printed Property Record Card – Property Record Cards can have been created for some Jurisdictions. These cards can be printed for individual parcels or in continuous form. In general, the computer-printed property record contains the following data:

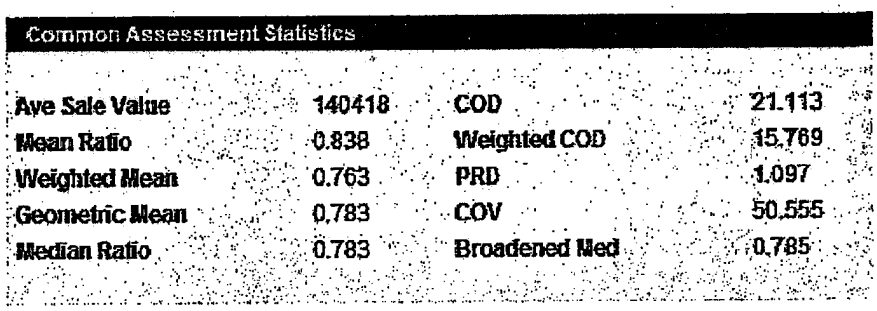
- Parcel Identification
- Ownership
- Legal Description
- Land Description and Pricing Data
- Improvement Description and Pricing Data
- Correlation of Values
- Sketch of the improvements on the property

Spatial Analysis (*i*Analyze)

The spatial analysis functionality provides a comprehensive application module for conducting a wide variety of assessment and taxation related analysis. This provides easy access to statistics commonly used in assessment analysis and modeling (e.g.: Median, COV, COD, PRD). The user can freely move between tabular, spatial (e.g.: thematic maps) and charting representations of their project datasets. The results of the analysis session can be saved as a user-defined project including the source property list and all applied criteria filters. Saved analysis sessions can be shared with other staff for review. The connection to both the GIS datasets and the *ias*World CAMA database are real-time. The following are some of the included features:

Assessment Analyst Features:

- Project Session Management
- Create Selected Record Sets
- Display, Save, Filter Lists
- Client Side Interactive GIS with VML Support
- Common valuation statistics e.g. mean, weighted mean, COD, COV, PRD
- Thematic mapping, Reports
- Graphing (e.g. histograms)



Common Assessment Statistics

Ave Sale Value	140418	COD	21.113
Mean Ratio	0.838	Weighted COD	15.769
Weighted Mean	0.763	PRD	1.097
Geometric Mean	0.783	COV	50.555
Median Ratio	0.783	Broadened Med	0.785

Figure 2 – Standard statistics for sales ratio analysis. There are additional statistics available.

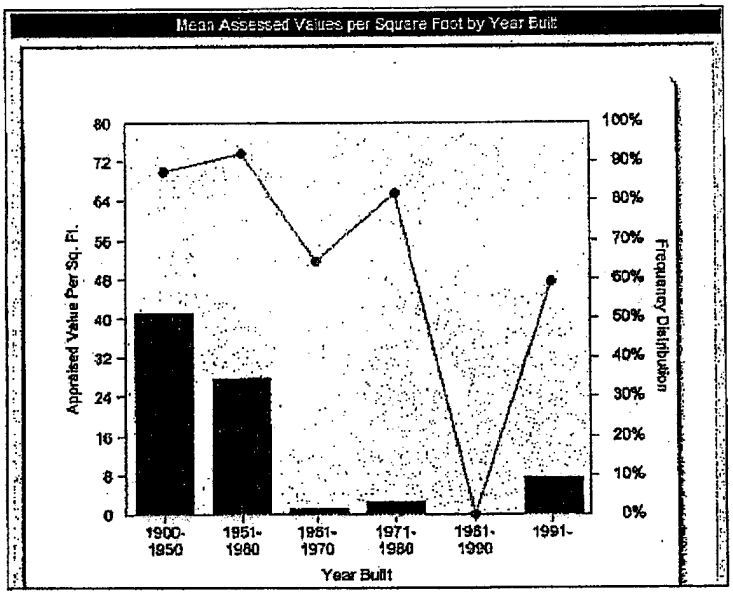


Figure 3 –Numerous charting options are available without requiring any programming. In this chart the mean appraised value per square foot is plotted against the year built. The histogram provides the relative distribution of properties by year built.

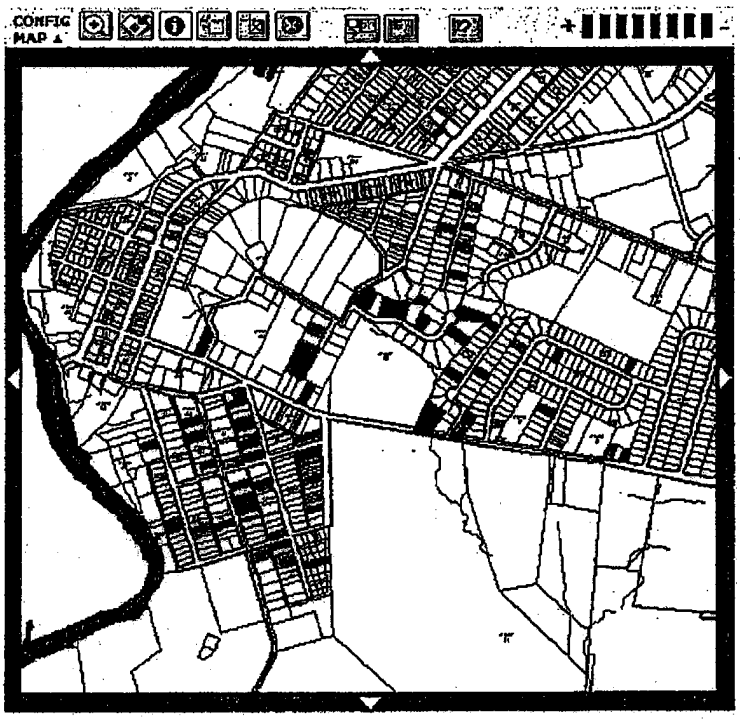
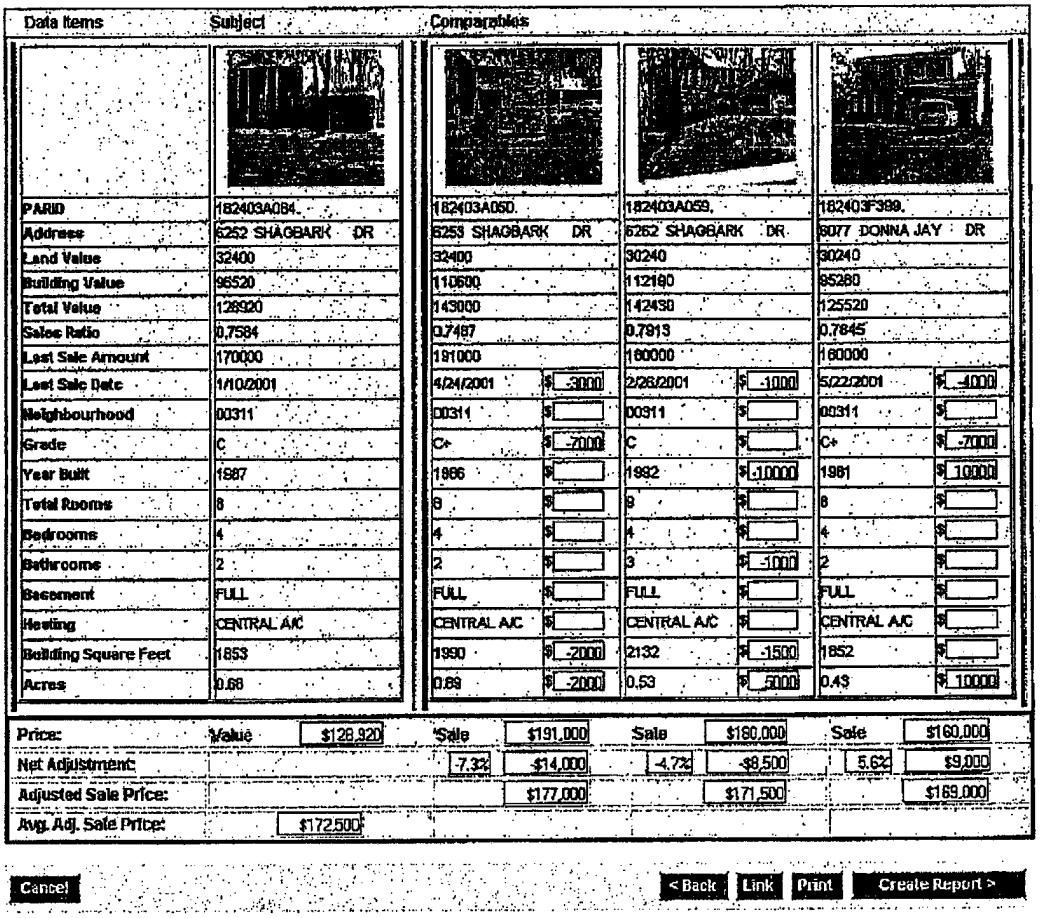


Figure 4 – Spatially Enabled Mapping. This map has been themeatically rendered by sales ratio. The yellow shading represents neutral zone, properties with sales ratios close to 1.0.



Data Items	Subject	Comparables		
PARID	182403A084.	182403A050.	182403A059.	182403F389.
Address	6252 SHAGBARK DR	6253 SHAGBARK DR	6262 SHAGBARK DR	6077 DONNA JAY DR
Land Value	32400	32400	30240	30240
Building Value	96520	110600	112190	95280
Total Value	128920	143000	142430	125520
Sales Ratio	0.7584	0.7487	0.7913	0.7845
Last Sale Amount	170000	191000	180000	160000
Last Sale Date	1/10/2001	4/24/2001 $ -3000	2/26/2001 $ -1000	5/22/2001 $ -4000
Neighbourhood	00311	00311 $	00311 $	00311 $
Grade	C	C+ $ -7000	C $	C+ $ -7000
Year Built	1987	1986 $	1982 $ -10000	1981 $ -10000
Total Rooms	8	8 $	8 $	8 $
Bedrooms	4	4 $	4 $	4 $
Bathrooms	2	2 $	3 $ -1000	2 $
Basement	FULL	FULL $	FULL $	FULL $
Heating	CENTRAL A/C	CENTRAL A/C $	CENTRAL A/C $	CENTRAL A/C $
Building Square Feet	1853	1990 $ -2000	2132 $ -1500	1852 $
Acres	0.68	0.89 $ -2000	0.53 $ 5000	0.43 $ 10000
Price:	Value $126,920	Sale $191,000	Sale $180,000	Sale $160,000
Net Adjustment:		-7.3% -$14,000	-4.7% -$8,500	5.6% $9,000
Adjusted Sale Price:		$177,000	$171,500	$169,000
Avg. Adj. Sale Price:	$172,500			

Cancel | < Back | Link | Print | Create Report >

Figure 5 – *ias*World Interactive Sales Comparables Worksheet. Appraiser can make adjustments by entering values in the adjust grid. Alternatively the adjustments can be based on system coefficients.

Field Work Efficiencies (*i*Field) *Not included with this agreement.

iField provides property details – selected by assessment experts – on devices that can be easily and conveniently used to update data in the field. The data used is downloaded directly from the CAMA database, and after being updated in the field, can easily be uploaded back into iasWorld, where it is subject to validity checks and supervisor review before being added back into the CAMA database. By streamlining the steps between identifying a property that requires a field visit and scheduling the visit, and enabling data management on a mobile device, iField increases productivity and improves data integrity.

iField includes the following features:

Field Operations Management

- Define Field Visit Requests (FVRs) and Workpacks (which are used to manage collections of FVRs) to support existing workflows (residential, commercial, photo collection, new construction, new sales, appeals)
- Simplified identification of parcels that require field visits, including automated triggers
- Powerful selection tools to support work distribution, including optional routing with GIS assistance
- Create Field Visit Requests (printed, PDF or online iField data forms) with integrated PRC data, maps, sketches, and photos
- Comprehensive management features, including tracking by age, assignee, task stage and status
- Real-time wireless network integration (upload/download)

The process for selecting properties for review can be enhanced by database triggers tied to targeted events, such as building permits, assessment appeal notices or legislated bulk assessment reviews. Because iField is fully integrated with iasWorld's enhanced GIS functionality, property visits can be planned using GIS maps, or using integrated tools such as Microsoft's Route Planner. Property visits can be managed as standalone Field Visit Requests (useful for exception-related field visits), or collectively in Workpacks.

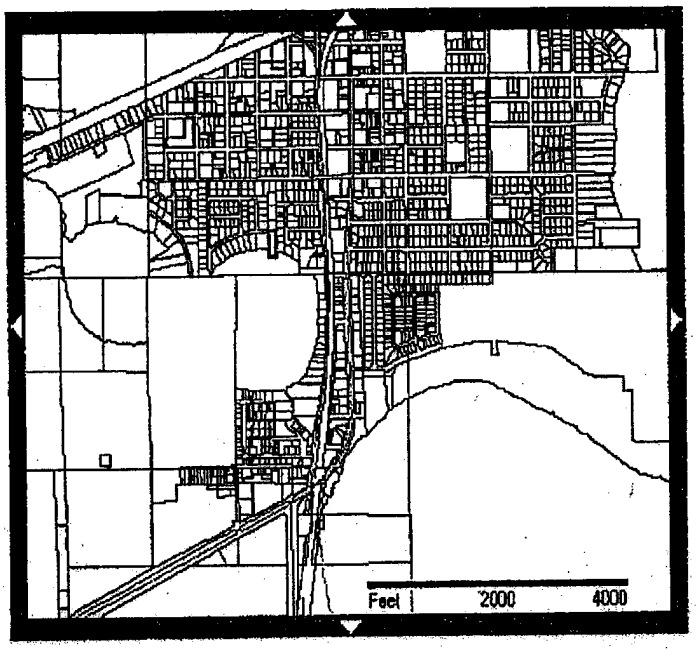


Figure 6 – Field Visit Route Design – Properties can be selected on the integrated map display, to plan efficient field visits. iasWorld can also be integrated with route planning GIS systems.

While iField's data collection forms are optimized when used online on mobile devices, they can be printed or stored as PDFs. When used on a field device, the system is designed to support the "sometimes connected" user. Where and when wireless internet access is available, field personnel can access and update the live database. In the event that wireless internet access is unavailable staff can continue updating downloaded FVR's off-line.

Handheld Device Interface (*i*Field)

Property Record Card (datalet format similar to *i*Care)
Content Sensitive Data Entry (optimized for fast and accurate edits)
*i*Field and *ias*World Interface (XML/XSL work transactions)
Vector-driven Sketch Support
Online Connectivity – LAN or wireless (if coverage is available)
Offline Support (local copy of data records)

Personal Property

Purpose

The Personal Property module provides for the receipt and processing of property returns from taxpayers, the computation of an assessed value, and in case of failure to report, a mechanism for forced valuation of the property. The personal property module also provides auditing features to assist users in verifying the reasonableness of a return.

Reporting forms, the categorization of personal property for valuation (and sometimes assessment factoring) purposes, and administrative functions, such as forced audits, penalties for failure to file, etc., often vary by state. Various forms can be produced and select lists produced using Oracle tools such as Oracle Discoverer®.

Personal Property General Description

The on-line Personal Property System provides for the maintenance of personal property information, tax extension, and timely reporting. The system provides the following functions:

- Unlimited history to view values and tax history information by tax year and file year
- Unlimited alternate name indexing (aka, dba, etc.)
- Unlimited alternate identification number indexing
- Unlimited location address indexing
- Optional Auto-assigning of PP Account number with the ability to customize the assignment of account numbers by installation site
- Unlimited ownership and multiple ownership information
- Inquiry search screen for real or personal property records using user-defined codes that can be set up as State use codes or any other defined codes
- Account via OCR-A or bar coded documents
- Entry of account numbers for mass filing of non-filer entry using OCR-A or bar coded account numbers
- Reconciliation status summary screen to reflect preliminary and changed values and exemptions for any account/parcel during reconciliation
- Status of the account, review date, additional status flags, tax codes, and neighborhood codes
- Entry of new account records and database changes on a current year, next year, or back assessment record
- Unlimited access to add, insert, and/or modify comment maintenance on a detailed line basis
- On-demand or in batch reporting for a single account or entire file or sections of the file
- Bar Code scan of the Account number on the Tax Return
- Index search screen to find a personal property account by account number, location address, owner name, or alternate name, tax district, business name, NAICS code, etc.
- Integration from the *ias*World Real Property System to notify a personal property account of key activities, such as the removal of an exemption or sale of real property

In addition, the Personal Property system provides the following interfaces with the *ias*World Property Tax Engine base module:

- Exemption Sub-System
- Common Owner Table
- Mortgage Code/Mailing Number Table
- Alternate Names Table
- Alternate Identification Numbers Table
- Alternate Addresses Table
- User-Defined Field Table
- Parcel Comment Table

Account Maintenance

The user can create an account and build account information pertinent to the business, such as filing date, business start date, federal ID number, business description, business type, industry code, social security number, fiscal dates, file by date, extension date, etc. Fifty user-defined fields available can be customized for the terminology of each site. There are also user-defined table codes set up for the computation of a value.

Value Maintenance

The Personal Property Value Maintenance screen allows the authorized user to enter detailed filings from tax returns. The detailed valuation screen supports the entry of appraisal information used in the valuation process, displaying all cost information and values associated with individual property records.

The subsystem incorporates classes of detailed records that conform to State guidelines. The user can enter current and delinquent (back assessment) detail asset information that includes original cost value, taxpayer value, assessed value, year acquired, number of units, etc. The Personal Property Value Maintenance screen will calculate an appraised value amount using the rates/factors associated with the line item entered.

The user can enter detailed personal property line items for regular items, manufactured homes entries, and CAMA dwellings/detail line items. A single line or a multi line entry is available. The multi line entry option only displays required entry items to speed up entry of detail assets.

Leased Information

Leased equipment is entered as owned or leased equipment, thereby building a cross-reference file. Values can be assessed for special conditions. Users can maintain lease information, such as the lease name, lease account number, and lease assets by lessee and lessor. They also have the ability to maintain lease information for an account and cross-reference accounts for future value assessment/auditing. In addition to entry availability, the users can access a lease cross-reference inquiry screen for Lessee to Lessor relationship and Lessor to Lessee relationship for the user to view lessee/lessor information.

OBY Interface

CAMA OBY entries, total building value, selective dwelling values, additions, and other features can be pulled into the Personal Property system for residential and commercial properties. CAMA maintenance is accomplished before selecting CAMA entries for Personal Property assessment. The user has all the same OBY capabilities such as sketching, Property Record Cards, worksheets, and valuation, because the Personal Property module is a shared module with Real Property.

Summary View of Values

There is a summary view of values and taxes. Category and class (also known as sum line number) summarize values. A total value is displayed at the bottom of the screen, broken out by original, adjusted, and net for appraised, pollution control, filing penalty, omitted penalty, exempt, and assessed values and taxes. User-defined labels customize the terminology of each site.

Penalty Calculations

The subsystem has the ability to assess late filing penalty, non-filing penalty, and/or omitted penalty on applicable assets/accounts. The user can view the calculated penalty view on a detailed line basis. The user can calculate late filing, non-filing, and/or omitted penalty on-demand. (This module can automatically calculate these penalties upon committing the transaction, if desired, to eliminate the need to perform this on-demand function.) A batch program is also provided to calculate penalties.

Calculated Values

Values are calculated on a per line item basis. The Personal Property Value Maintenance screen uses the table rates previously established upon installation to calculate the appraised value. The user is given the option to use the calculated value or to override the value. If the user does not override the value, then the calculated value becomes the final appraised value for the line item. The system uses an unlimited amount of depreciation tables to finalize the RCNLD. IAS supports quality factors and asset types in determining what depreciation table to utilize.

File Year

Personal Property filings will be entered per file year. Taxes can automatically be calculated upon committing the transaction or pressing the calculation button. Tax rates used are based on the tax district on the account and file year entered.

The file year will indicate whether this is a current filing (where the effective tax year equals the file for year) or is a back / prior years assessment filing. Current filings are identified as tax returns filed in the current assessment year for the current year. Back/prior assessments are identified as tax returns filed in the current year for a prior year(s). The Personal Property Value Maintenance screen will use the appropriate valuation and tax rate tables for the effective file year entered.

Interface with Assessment Administration Module

The Personal Property Value Maintenance screen uses the alternate identification and alternate name standard modules. Alternate name and alternate ID options exist on the drop-down menu available for entry/query at any time in all screens in Personal Property. This approach can be referred to as a *browse concept*. These options would typically be entered in the Personal Property Account Maintenance screen and utilized in the Personal Property Value Maintenance screen to query an account by either or both of these browse fields. Alternate IDs can be established on any number that is determined relevant to be queried on at a later time. Alternate names are owner names DBA, AKA, FKA, etc., and can be queried by selecting the appropriate button and entering the name to be queried.

A copy function is provided within the AA module to copy personal property detail line items for a prior tax year into the current tax year. This feature exists in the copy maintenance module. Once records have been copied or inserted into the Personal Property Value Maintenance screen, the user can assess the records as any other personal property assessment for the current tax year using the Personal Property Value Maintenance screen.

Vehicle Maintenance

The user can perform the valuation of automobiles or motorcycles and validation between mileage with respect to the zone, and/or location upon entry based on the database information.

Personal Property Data Management

The Personal Property module provides a complete database of detail asset characteristics and owner information. Here is a **partial** list:

Detailed Information

- Asset ID
- Description
- Type
- Category
- Note Code
- Year Acquired
- Number of Units
- Calculation Method
- Schedule
- Trend Factor
- Taxpayer Value
- Original Cost Value
- Assessed Value
- RCN Value

Owner Information

- Neighborhood
- Tax District
- Owner Name
- DBA Name
- Property Location
- City/State/Zip
- Total Number of Owners
- Owner Type Code
- Owner Link
- Agent Code
- Martial Status

Account Information

- NAIC
- SIC Code
- Use Code
- Business Type
- Description Type
- File Extension Date
- File Extension Number
- File Date
- File Code
- Lien Code
- Lien Number

Personal Property Reports

Alpha List – This report is generated in owner sequence displaying Account ID associated with the name and tax district.

Select Parcel List – This report can be generated for a selected parcel listing of account information for general purposes selected by parcel number, neighborhood, or zone.

Non-Filer Report – This report contains a list of non-filers by fieldref and account type.

Field Location Index - This report generates a field location report selected by parcel number, neighborhood, or zone.

Business Worksheet - This report generates a personal property worksheet for regular business accounts containing ownership information and valuation detail by selected parcel numbers, neighborhoods, or zones.

Leased Equipment Worksheet – This report is a personal property worksheet for lease accounts containing ownership information and valuation detail by selected parcel numbers, neighborhoods, or zones.

Batch Cost Report – This report provides the user with a list of accounts comparing their current and previous year assess values.

Value Change Report – This report identifies the updated value changes for a selected period of time.

Certificate of Corrections – This report prints a State-approved certificate of correction form utilizing the on-demand function. The user also has the ability to generate and pass a correction and note to a previous year record through a screen.

Omit Letter – The system will generate an Omitted Letter if the filer has personal property assets that are omitted.

Mailing Labels – The system will generate mailing labels for the requested classification of parcel type.

Personal Property Tax Return – The system generates a report that is customized by the installation site and conforms to State guidelines.

End of Year "Rollover" – This report rolls over personal property accounts. This report will also roll over tables from modules that are interfaced with the personal property module, such as: Owner, Alternate and Multiple Owners, Legal, Mailing Address, and Assessment.

Personal Property Batch Cost - This report gives the user the ability to batch cost all assets or selected assets based on parcel number ranges, account type, fieldref code, neighborhoods, or zones.

Non-Filer Update – This report is a batch update that calculates non-filer filer accounts.

Penalty Update – This report gives the user the ability to calculate penalties for accounts based on a parcel number range, account type, and/or penalty type. It also gives the option to re-calculate accounts that already had a penalty applied.

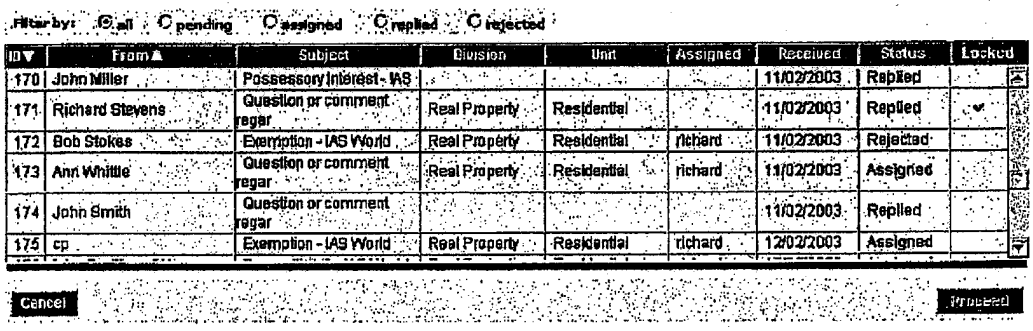
Cost Schedule Rollover – This report creates appraisal records to be used in calculating values.

Batch Deactivation – This report gives the user access to deactivate or reactive accounts in the personal property sub-module selected assets based on parcel number and account range by rolltype.

Taxpayer Correspondence Management (*i*Respond)

The Taxpayer Correspondence Management Functionality provides a messaging framework to manage customer correspondence and workflow task assignments. Configuration flexibility allows for the management of general email correspondence and/or support specific business process with event driven notification and task queuing.

Incoming Mail



Managers can review incoming correspondence and assign items to resources or business units for research and reply. Correspondence is consolidated in a single view that is filtered to present items by action status (pending, assigned, replied, rejected). Implicit record locking ensures that two or more people cannot work on the same item at once.

Included in this functionality are reply templates that allow common inquiries to be answered quickly and consistently. Organizations can author sanctioned responses to common queries that are made available to staff when composing replies. After selecting from a menu of sanctioned responses the email content is automatically drafted. This content can then be sent as is or edited to tailor to the specifics of the inquiry. Mechanisms to log, respond to, and report on events regarding property assessment accounts are also included with this set of functionality. These events, or incidents, can be initiated over-the-counter, by phone, or via the website by property owners, other government agencies, or assessment department processes.